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Original Articles.

SYMMETRICAL SYNOVITIS IN HEREDITARY SYPHILIS.

By ABNER POST, M.D., BOSTON.

In the *Lancet* of February 27, 1886, Mr. H. H. Clutton, assistant surgeon at St. Thomas Hospital, published an article on "Symmetrical Synovitis of the Knee in Hereditary Syphilis" with a table of eleven cases. Of the eleven cases, Mr. Clutton furnished seven, Mr. Nettleship, of the eye department, furnished three, and Mr. Lawford furnished the eleventh.

The predominant features of the disease as reported in this article were the symmetry of the affection, the freedom from pain, the long duration of the symptoms, and the free mobility of the joints throughout the course of the disease.

There was in each case evidence of syphilitic heredity. The patient generally complained of stiffness in one knee which was then found full of fluid but not tense. On careful examination, the other knee was also found to contain fluid but not to the same extent as the one for which advice was sought, so that it is fair to assume that the knee to which attention was directed by the patient was affected some little time before the patient felt any inconvenience. It is referred to as an "insidious chronic synovitis." The swelling was accompanied by considerable thickening of the synovial membrane, but the marked feature was the increased quantity of

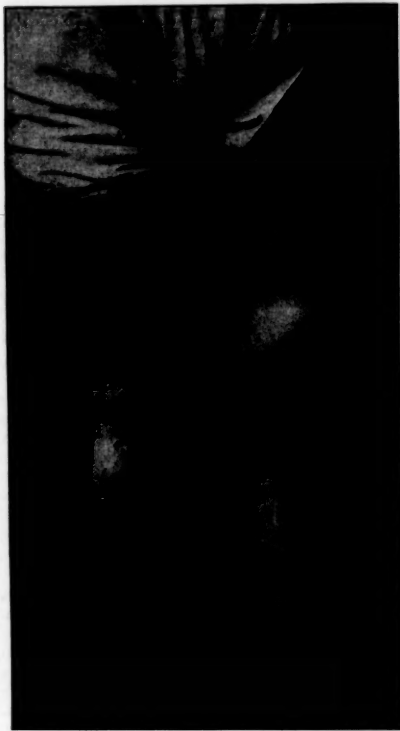
synovial fluid. The joints were never tense but gave a sensation of flaccid fluctuation. The bones were not enlarged. Sometimes nodes were found at a distance from the joint. There was no alteration in the knees for many months. Those that were treated by splints and rest in bed were as slow in getting well as those that had had no local treatment whatever. Of the eleven cases, nine had interstitial keratitis, and one had traces of an earlier attack. Five had Hutchinsonian teeth, four had nodes on the tibia, two were absolutely deaf.

A little study of Mr. Clutton's table shows that the interval which elapsed before the involvement of the second knee was sometimes so long that the first knee must have been considered by itself—and in other cases there was a considerable degree of tenderness in one or both knees. So that the variation in symptoms is sufficient to make the diagnosis sometimes obscure.

Although interstitial keratitis was present in ten of the eleven cases, symmetrical synovitis also occurs in cases in which interstitial keratitis is not present. In one personal case the diagnosis was uveitis; in another the patient was born blind—in still others there was no disease of the eyes present. Mr. Clutton believes this affection of the knees to be comparatively rare. Fournier mentioned Clutton's article in a foot note in his book on "Late Hereditary Syphilis" which was published in 1886, the same year as Clutton's article, and said that he could not doubt the accuracy of Mr. Clutton's observation though he had never seen identical cases.

A careful study of syphilitic children shows the symptom to be comparatively frequent. The fact that the joints are seldom fully distended,

that they are painless and interfere but little with locomotion explains their infrequent recognition. These joints have been compared to interstitial keratitis which is usually symmetrical but may be single or the two sides affected with so long an interval that the first case is single so far as diagnosis and treatment are concerned.



An example of Clutton's which occurred in a little girl who had also interstitial keratitis, Hutchinsonian teeth and chorea.

The same condition evidently occurs in synovitis of the knee. There was an interval of twelve months between the two knees in Mr. Clutton's eleventh case.

These knees are seldom painful but they sometimes make locomotion awkward. Patients trip easily. Sometimes the joints become somewhat flexed, and walking is more awkward and even difficult. The fluid is slowly absorbed but it is usually quickly diminished, sufficiently to relieve symptoms.

The fluid is thick and the capsule seems thickened, but the joint surfaces are not injured, so

that moderate exercise is not injurious. The thickened capsule and its contents show often a sufficient x-ray shadow to define the shape of the synovial cavity. The radiogram often shows changes in the tibia but none in the joint itself.

The recovery is usually perfect, but not always. One case to my knowledge recovered with slight flexion, which was never fully corrected, but the patient walks and has no disability beyond that incident to imperfect extension.

If we consider Mr. Clutton's knees as a type, it must be recognised that knees occur which are not true to type. A little girl in the orthopedic department of the Massachusetts General Hospital was admitted with knees which contained very little fluid and in which flexion was the most prominent symptom. There were no other



These two radiograms show the femora and one tibia from a case of symmetrical synovitis of the knees at the Children's Hospital.

signs which could be attributed to syphilis and the Wassermann report was negative. The x-ray of the knee joints showed no sign of disease in bone or cartilage but the tibiae showed a thickened cortex which was believed to be syphilitic. Within a short time, while she was still in the hospital, she developed an interstitial keratitis and a family history was obtained which was strongly suggestive of syphilis. The knees, and also the eye recovered under anti-syphilitic treatment. There is reason to suspect that joints of this class have been operated on as tubercular.

Symmetrical synovitis occurs in other joints. Mr. Clutton's eleventh case had a history of a swelling of both ankles at the commencement.

Taylor, in his chapter on dactylitis, says: "In some cases an effusion into the joint-cavity takes place slowly and without pain." A boy of ten with intermittent haemoglobinuria has symmetrical synovitis of both wrists and also elbows. His knees are quite distended with fluid. He was also a patient at the eye and ear infirmary for interstitial keratitis.

A young lady was referred to me recently with a question as to the character of the swelling of her knee. She is thirty-one years old, has had trouble with her knees ever since she was thirteen. Both knees are quite full. They vary in fullness from time to time; when they are tense they are quite painful and interfere with locomotion. She wears a bandage about them which gives her a sense of support. Her ankles are both distended with fluid and she always wears high shoes for the same reason that she wears the bandages about her knees. She has had no other signs that can be traced. Her parentage is unknown. Blood for Wassermann is negative. Her knees correspond exactly to Mr. Clutton's description. There has not yet been opportunity to learn the effect of treatment.

Local treatment of the knees seems to be unnecessary and in many cases actually harmful by confining the child when it needs fresh air and exercise. Treatment for the constitutional condition is, however, necessary. Mild mercurials often act very well but sometimes the iodides do better. Salvarsan may be used as an adjuvant, often with benefit, but a sudden absorption of the effusion is hardly to be expected. In general, treatment acts slowly. The effusion is absorbed sufficiently to allow free use of the legs but it can still be recognized for many weeks or even months after treatment has been instituted. Some cases which have not been recognized and treated hitherto as syphilis often respond very quickly.

Symmetrical synovitis of the knees has occurred so often in conjunction with interstitial keratitis and Hutchinsonian teeth that such a triad may be considered as valuable as Mr. Hutchinson's triad of interstitial keratitis, Hutchinsonian teeth and deafness.

SOME MODERN IDEAS ABOUT ANAESTHESIA.*

By FRANK L. RICHARDSON, M.D., BOSTON.

THE duties of the anaesthetist have not been strictly defined. To my mind, the anaesthetist is to look after the welfare of the patient during the course of the anaesthesia, and to offer suggestions as to preliminary and post-operative treatment that concerns the anaesthesia. If this definition is roughly accurate it includes a number of duties besides the actual administration of the anaesthetic.

Not many years ago, it was enough if the anaesthetist got his patient off the table alive, no matter what discomfort the patients had before the actual business of operating, or what happened to them afterwards. Happily for all concerned, those days have passed in all enlightened communities. Not only is the surgeon critical, but the laity, at least in this community, expect certain refinements which not only add to the comfort and safety of the patient, but reflexly add to the reputation of the surgeon. A patient who has had one unfortunate experience will not be very likely to seek more surgical assistance unless he is actually driven to it—in fact he may influence others from seeking assistance by his tales of suffering. Please do not think that I believe that all suffering can be prevented by the anaesthetist, but I do feel sure that by proper coöperation between the surgeon and the anaesthetist a considerable amount of suffering can be avoided.

Let us begin with the preparation of the patient. The preparation depends to a certain extent on the field of operation, yet there are certain things done as a routine, such as the cleaning out of the intestines, and having the stomach empty.

It is the custom with some operators to give castor oil the night before the operation and an enema the morning of the operation. I believe that this is a most pernicious custom. While castor oil will certainly clean out the intestinal tract, it leaves a very unpleasant condition. Castor oil is an intestinal irritant and as a result of its use after the violent evacuation, peristaltic movements cease for a varying length of time. If the operation has been on the abdomen this period of intestinal stasis facilitates the accumulation of gas with results that are always painful and sometimes dangerous. Isn't it more rational to give a saline cathartic or Russian oil, followed by a cleansing enema, than to use castor oil? Catharsis should never be too active before an operation because of the debilitating effect, and I believe that it is time well spent to take two days in preparation in cases of chronic constipation or in cases where the intestinal contents must be completely evacuated.

*Read before the Chirurgical Society of Boston.

Another matter to be considered is the question of food. Here I realize that I am treading on dangerous ground and that no hard and fast rules can be laid down, but there are certain fundamental principals that should be considered.

Where either ether or chloroform is to be the anaesthetic selected, we should try to have the food contain as large an amount of carbohydrates and sugars as possible because it is well known that ether has a tendency to produce a condition of acidosis in patients not having a reserve supply of glycogen in the liver. It is also stated that the degenerative processes in the liver caused by chloroform anaesthesia are largely prevented if the liver has a sufficient supply of glycogen. Particular attention should be paid to this factor in children and debilitated patients. Starvation is above all things the condition that should be prevented, for where there has been a prolonged fasting the glycogen of the liver is rapidly used up. Diabetics form a special group, and I feel strongly that no diabetic should be operated on except in the gravest emergency without a preliminary course of dietetic treatment given by a competent medical man. While it is true that we get away with many operations on diabetics under ether, we are sometimes surprised and alarmed at the symptoms following comparatively trivial operations in other cases.

Around Boston, until within a very short time, we have hardly considered any other anaesthetic than ether. There are several reasons for this. Of all the general anaesthetics, except nitrous oxide, ether is the safest in the hands of the unskilled or moderately skilled. We have, too, a pride in the part Boston has played in the introduction of ether and this is one of the principal factors that has led to its traditional use here. Ether is not the only anaesthetic to be considered even if it is the safest in the majority of cases. Nitrous oxide, nitrous oxide and oxygen, chloroform, etc., must at least be considered, and in selected cases one of these is sometimes safer than ether.

I should like just to mention a few indications for the use of some other anaesthetic than ether. No case of tuberculosis of the lungs should be given ether without consideration of some other anaesthetic. The danger is in direct proportion to the activity of the process and the general condition of the patient. I have quite recently seen two cases of prolonged ether anaesthesia in which the administration of ether lighted up an old and unsuspected tubercular process. Fortunately in these cases the process quickly quieted down, but that was merely an accident. In tuberculosis of recent origin and especially in active tuberculosis, the patient may recover from the operation only to die from tuberculosis, and the anaesthetist, while he escaped censure, may have been responsible for the unfortunate outcome. Bronchitis is another condition in which one should consider some other anaesthetic.

Since the substitution of novocaine for cocaine in local anaesthesia we have been doing more and more operating with this form of anaesthesia. It has great advantages in many cases. In deciding between local anaesthesia and general anaesthesia there are a number of questions to be considered. Among these are duration of the operation, site of the operation, sepsis, the temperament and general condition of the patient. Local anaesthesia does one thing that must never be overlooked—it does away with the mental and physical discomfort of taking a general anaesthetic. It is true that this discomfort, thanks to more refined methods of giving general anaesthetics, is now much reduced, so that many patients have no physical discomfort and the period of mental discomfort is greatly shortened, yet to some people taking an anaesthetic rather than the operation is the thing to be dreaded. On the other hand, there are many people whose temperament contraindicates the use of local anaesthesia. They do not wish to be present at their own operation. The proper use of morphine and scopolamine will in many cases do away with this objection, and I wish to urge the more general use of morphine and scopolamine in proper dosage as a preliminary to the larger operations under local anaesthesia.

Spinal anaesthesia is another procedure that has a very distinct place. I have rather strong opinions on this subject. Statistically it is much more dangerous than most general anaesthetics or novocaine locally, but in given cases I believe that it is much less dangerous. Especially is this true of operations on the prostate and the more serious operations on the rectum. It is also the anaesthetic of election in diabetics where the field of operation is not too high, and it must be considered in cases with pathological lung conditions.

There is one very considerable advantage that these forms of local anaesthesia have over general inhalation anaesthetics. Of themselves they do not interfere with the taking of regular and sufficient food, which may be of greatest importance.

Nitrous oxide and nitrous oxide-oxygen are anaesthetics that are not properly considered in our selection. Both have been sadly neglected except by those men who have the nitrous oxide-oxygen hobby, and by those few have at times been over-done, so that I think we all share a prejudice against the use of nitrous oxide-oxygen. The truth is we do not know all we should about nitrous oxide-oxygen, and I must confess that I advise its use only in a very limited number of cases. In general, these are cases in which the operator does not require muscular relaxation and where the operation requires only a short anaesthesia. It now seems crude in most cases for anyone to do a paracentesis of the drum without an anaesthetic or a dilatation and curettage under ether when nitrous oxide-oxygen is available. I mention only these two operations,

but of course there are many others where it is an excellent anaesthetic both for the patient and the operator, and does away with some of the discomfort of most general anaesthetics.

As to the actual giving of the anaesthetics, there are only a few things that need to be said. One must remember that all anaesthetics are poisons with the possible exception of nitrous oxide, and therefore, the less taken by the patient the better. This being the case a position on the table which gives muscular relaxation, and surgical technique which does not require profound anaesthesia are always desirable. It is never wise, however, to hurry the induction of the anaesthesia. One anaesthetic method that I wish to call particular attention to is the method of rebreathing or closed method. Some anaesthetists boast of the small quantity of ether required by this method. It is true that a much smaller amount of ether is added to the inhaler, but it is also true that, where asphyxia plays no part in the maintenance of this anaesthesia, the patient is still getting 15% by weight of ether vapor, the only difference being that the ether exhaled by the patient is again inhaled with this method instead of being thrown off into air as in the open method. I said "if asphyxia played no part in the anaesthesia," but as the method is usually applied asphyxia does play a part, and a part that is far from desirable. Patients anaesthetized by the closed method are frequently a little off color and I believe that they have a greater amount of anaesthetic shock or fatigue. I do not wish it understood that rebreathing has no place in the giving of anaesthetics—this is not true, but when rebreathing is used the oxygen content in the mixture must be maintained as high as in the surrounding air and we must realize that although the amount of ether added to the inhaler is much less than by the open method, the per cent. inhaled by the patient must be approximately the same. What, then, are the advantages of using this method in any cases? According to Henderson's theory a certain increase in the amount of carbon dioxide inhaled combats the state of shock. While I do not entirely believe in all of Henderson's deductions, it is clinically true that in some cases a condition which we call shock is somewhat relieved by an increase in the amount of carbon dioxide inhaled. We can, however, maintain a proper oxygen content while still increasing the amount of carbon dioxide. This leads to a consideration of the condition of shock. There is probably no more disputed phenomenon in the whole realm of surgery, and when we collect all the real facts about it we have very little to show. Of course shock is a real condition, but of the mechanism of shock we know very little. Crile's theories, while they are in part true, are not the whole story by a long way. Personally I think there are two, sometimes distinct, states. True, surgical shock, which is due in part to hemorrhage and in part to trauma, causing afferent nerve

impulses which result in exhaustion of the central nervous system. There is, however, another state resembling shock in which these factors play but little part. This is due to the length of the operation and certain factors in the course of the anaesthesia. I prefer to call this condition fatigue, though whether it differs in kind or only in degree from true surgical shock, I cannot say.

The operating table and the patient's position on the table are other matters about which something should be said. Is there any reason why the operating table should be so uncomfortable? Why not have pads on it thick enough to take off some of the board-like feeling and which will, to a certain extent, prevent the radiation of heat from the patient's body? In most hospitals they put a small pad under the lumbar curve of the spine so that when muscular relaxation comes on, this lumbar curve is maintained and there is less strain on the back. Placing a pillow under the knees is of almost as much importance in preventing the post-operative backache, and has the advantage that it promotes relaxation of the abdominal muscles, thus giving the surgeon more room in abdominal work. Let me say one word about the Trendelenburg position. As it is usually carried out, the legs are flexed at the knees. This in itself puts a marked strain on the abdominal muscles, requiring a much deeper anaesthesia to give the required muscular relaxation. It also puts an added strain on the back and is a contributing factor to backache in these cases. I believe that it is very much better to use well padded shoulder pieces and keep the legs out straight, even at a slight inconvenience to the surgeon. If you have never laid on a table in the Trendelenburg position, with the legs down, I think you will be quite surprised at the amount of muscular tension this position gives. One should avoid whenever possible any position placing the muscles in strain while under an anaesthetic as we do while conscious.

As before stated, the anaesthesia should be as light as possible. Certain unnecessary factors in operative technique make it necessary at times to carry the patient along in a deeper stage of anaesthesia than is desirable. Rough handling of wounds and of the abdominal organs makes it necessary to have a much deeper anaesthesia than careful handling would require. While I am strongly in favor of rapid operating, I feel sure that it is rarely, if ever, necessary to be rough. This rough handling not only requires a deeper anaesthesia, but even when the anaesthesia is deep enough to maintain muscular relaxation the amount of surgical shock is markedly increased. In certain regions and in certain procedures it is particularly desirable to be gentle. Any traction on the intestines or stomach should be particularly gentle. I have seen an abdominal retractor put into a wound and given a jerk in retracting the muscles and peritoneum that caused an immediate spasm of the muscles and an

amount of shock that was almost unbelievable. The same thing may occur if a loop of intestines is pulled roughly out through a small wound. In this connection let me command the self-retaining retractor, which gives retraction without the intermittent pulls and jerks, each one of which acts as a direct stimulus to the contraction of the muscles pulled upon. It is not cutting that causes shock, but pulling and other manipulation. One should be as careful to handle tissues gently under a general anaesthetic as one is under local anesthesia, if the best results are to be obtained. I have but one word more to say about technic. Surgery is done primarily for the benefit of the patient. When the patient is ready to be prepared the attendants should be ready to do the preparation, and the surgeon should be ready to commence the operation as soon as the patient is deeply enough anaesthetized to allow it.

Post-operative care is another matter for consideration. Fortunately there have been great advances in the last few years, and some of the absurdities of the older post-operative treatment have now become obsolete, such, for instance, as withholding water. If there is any one time when a patient needs water it is after operation. He needs fluid to make up for loss by bleeding and by perspiration. The fluid taken also dilutes toxic substances absorbed from the intestines so that they are eliminated with less irritation by the kidneys. I believe that there is less nausea and vomiting where water is given. The quantity of fluid vomited may be greater, but the vomiting is of shorter duration and the straining is less. Whenever vomiting persists acidosis should be suspected and prompt measures for combating this condition should be instituted. It is much better to prevent acidosis by proper diet before operation than to cure it after operation, but in cases where proper diet cannot be given before operation we can usually relieve the condition quite promptly afterwards. Irrigation of the colon with sodium bicarbonate water (3 teaspoonsful of sodium bicarbonate to 2 quarts of warm water) followed by a nutrient enema of 5% dextrose solution will usually relieve the condition quite promptly. Feeding a patient broths just before and just after operation is one of the absurdities that we will see entirely disappear within the next few years. They have almost no nutrient value, they throw considerable work upon the kidneys, and they do not greatly relieve hunger. Why should we give them at all? The only possible excuse is that they do not leave any residue in the intestines. Carbohydrates should be given, and when they cannot be given by mouth in sufficiently large doses they should be given by rectum.

Let us again consider the question of back-ache. Proper position on the table is not always enough to prevent this, and it is well to be sure that the back is not in a position of strain when the patient is returned from the operating room

to the bed. A pillow under the knees helps. Frequent changing of the patient's position is also of assistance.

As you see, this paper makes no pretense of being exhaustive. It is intended to call attention to certain neglected procedures and to promote discussion of our present methods, which it is hoped will be for the best interests of our patients.

EPISIOTOMY.

BY JOHN T. WILLIAMS, M.D., BOSTON,

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THE purpose of this paper is to renew attention to a little-used procedure of definite value in certain obstetric cases. Episiotomy was first suggested by Ould¹ in 1742, and again by Michaelis² in 1810, but received little attention until about 1885, when the operation was taken up by Credé³ Manton,⁴ and others.

It was at first used to substitute a clean incision wound for the lacerations of the perineum. But as improvement in the after-care made union after a primary perineorrhaphy possible, the operation fell into disuse. Episiotomy today has one indication, namely, the prevention of complete tears of the perineum.

While with improved obstetric technic complete lacerations of the perineum are less common than formerly, there are still occasional cases in which these are unavoidable except by the increase of room afforded by section of the soft parts in a lateral direction. According to Williams⁵ a large part of all complete tears are the result of contractions of the inferior strait of the pelvis. To this must be added the rigid perineum of the late primigravida, the short perineum where the distance from the fourchette to the anus is very short, unusual size of the fetal head, the aftercoming head in breech presentations and face presentations delivered as such (Edgar⁶).

It is desirable for good approximation that the incision should be made before the perineum starts to tear. Practically it will be often necessary to make use of this procedure after laceration has commenced. In this event the incision should be made from the edge of the tear rather than from the original margin of the vulva.

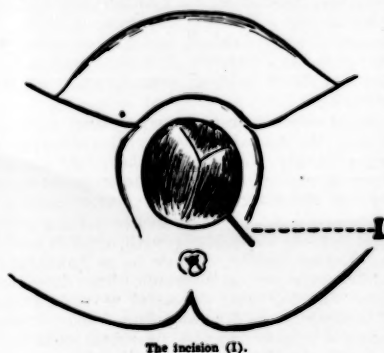
ANATOMY.

The soft parts of the vaginal outlet may be divided into two parts:

1. The levator ani.
2. The small perineal muscles and the fibrous tissue and fasciae making up the perineal body.

The levator ani, or rather that part of it which Savage¹ has named the pubo-coccygeus, arises from the posterior surface of the os pubis and extends backward about the vagina on either side to be inserted into the tip of the coccyx and the fibrous body of the perineum. This muscle can be palpated about one inch inside the introitus vaginæ, and should not be

The perineum proper consists of two small muscles, the sphincter vaginæ and transversus perinei, which, with some fibres from the levators, blend in a mass of fibrous tissue known as the perineal body, which is connected with the lower borders of the rami of the pubis and ischium by several indistinct fascial planes, analogous to the superficial perineal fascia and triangular ligament in the male. The incision should divide these parts.



I.C. ischio cavernosus.
C.V. constrictor vaginae.
T.P. transversus perinei.

S.A. sphincter ani.
L.A. levator ani.

cut in performing episiotomy. Schuchardt's incision, which is sometimes made as a preliminary to vaginal hysterectomy to allow a wider access to the vagina, does divide this muscle.

TECHNIC.

The incision should be made at an angle of about 45° with the median line of the perineum, and not at a right angle, in order to avoid wounding the venous plexus of the labium and to give the greatest room for extension. It is most easily performed with sharp, long-bladed, blunt-pointed scissors.

Jewett² does the operation bilaterally. Usually, however, it will be necessary to incise only one side. Waldstein³ makes a median incision half way through the perineal body, and then extends the incision at right angles on either side. The repair after such an incision is, however, extremely complicated.

The suture of the episiotomy incision is rather difficult, and involves suture of the vaginal and perineal aspects of the incision with interrupted sutures of catgut and silkworm gut respectively. Placing the stitch first, which embraces the junction of the skin and vaginal mucous membrane, greatly facilitates accurate approximation.

The after care is the same as that of primary perineorrhaphy. A slight experience with the operation will convince one of the advantage of performing episiotomy over allowing the perineum to tear into the rectum. The writer has done episiotomy in a number of cases from which he has selected two as illustrative of the whole group.

CASE 1. Mrs. L., a muscular primipara of 25, after a tedious labor of 20 hours was delivered by forceps. The perineum was extremely rigid and undilatable. Realizing that a tear through the sphincter would otherwise be inevitable, the soft parts were divided to the left for a distance of one inch. Delivery of a living 7 lb. baby was completed without further damage to the soft parts. The episiotomy wound was sutured and united by first intention. Four years later the patient was delivered normally of a $7\frac{1}{2}$ lb. baby. Episiotomy was not performed because the labor had proceeded so rapidly that there was not time to fully anesthetize the patient, and a tear into the sphincter resulted, which fortunately, however, united by first intention.

CASE 2. Mrs. S., a large, well-formed primigravida of 24 was delivered by low forceps after a sixteen-hour labor. In spite of the greatest care the perineum started to tear, and realizing that extension through the sphincter was inevitable, the

soft parts were divided to the left of the perineum. Delivery of an 11½ lb. baby was then accomplished without injury to the sphincter. Healing of the episiotomy incision was complicated by suppuration, resulting in partial breaking down of the wound. This, however, gave no loss of support, and the breaking down of a complete perineal suture, which would have happened just as surely, would have meant a period of fecal incontinence, followed by the discomforts and difficulties of a secondary operation. Sixteen months later she was delivered normally of a baby 9½ lbs. smaller than the first, without further laceration.

CONCLUSIONS.

1. Episiotomy is a procedure of definite value.

2. Properly used, it should practically eliminate complete lacerations of the perineum from gynecology.

3. It should not be performed except to prevent a complete tear, because incomplete perineal tears heal as well as the episiotomy wound and are less difficult to suture.

4. Complete lacerations of the perineum are especially to be feared in:

- (a) Contractions of the inferior strait.
- (b) Rigid perineum, as in late primi-gravidae.
- (c) Short perineum.
- (d) Unusual size of fetal head.
- (e) Aftercoming head in breech presentation.
- (f) Face presentations.

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WANTED—A FAD!

By ROBERT T. EDDES, M.D., READING, MASS.

THIS "ad." among many others in the columns of a paper which I had supposed to have as little occasion to feel such a want in this, its home district, as any other known to modern civilization, a region or soil producing as luxuriant a crop of such unhealthy vegetation to the square acre of "witch grass," "artemisia," "ambrosia," or other weeds under names very far in excess of their merit, struck me as amusing at the time, but later more seriously in the form of a short-notice call from the secretary.

This "ad" brought out some very excellent advice, as I ascertained from subsequent numbers of the paper, but it was under false pretences.

Why should any sensible person ask his fellow reader to tell him what "trivial fancy" to adopt or what "imperfectly understood matter" he had better "pursue with more zeal than reason"? I am quoting these definitions from the "Century Dictionary." You will not find the word in the "Webster" as late as 1873, although "fiddle faddle" is there on authority as old as the *Spectator*. The most zealous faddist would not welcome suggestions under this definition.

What this enquirer wanted was not a "fad" at all. He wanted, or at any rate deserved to get, a "hobby." He might have got many times more than enough value to pay the expense of the advertisement.

There is not much to be said in defence of the mere fad. In its earlier growth, until it attains the greater dignity, it may be as harmless as tiddly-winks or cat's cradle, less dangerous than "bridge," and as useful as the knitting of pretty woollens for the unborn babe. It may supply a long-felt want,—a cerebral vacancy.

A retired adjutant of the United States Army during the Civil War once exhibited to me with some pride his collection of postage stamps, among which one of the specials was an imperfect one of, I believe, a Central American republic. It might have been this fad, as well as his sense of official propriety which headed him off from publishing a book of "reminiscences," which would have been far from being as harmless either to himself or to many others as tiddly-winks.

A nervous young lady once complained to me, while talking over her plans for the coming season, as if the choice of a career were freely open to her, "I'm going in for art this winter. I tried charity last winter, and it didn't work." Neither worked very well for the poor girl, though her charity did but little harm and her art was equally innocent. Whether her "nervousness" had anything to do with a hypertrophied spleen, from which she had recovered, or to the well-marked typical case of exophthalmic goiter which afterward developed, I cannot say; it is not impossible that there may have been some remote connection with the latter.

But the sanely developed side occupation, the by-product of the work by which one earns,—or tries to earn,—his daily bread, the amusement, the relief from wearing monotony of toil, which gives no mental stimulus, but allows no relaxation of attention; the *hobby*, changing the perspective and giving the worker a different outlook at life, is something much more worthy our attention.

The hobby may indeed outgrow itself, and become the serious work, just as in manufactures it is sometimes the by-product which gives the profit. A large part of literature teems with ex-

amples taken from all walks of life, the professions, the arts, trades, and handicrafts or even the leisure which might have gone to mere amusement but has become a willing sacrifice to more congenial work. But these examples are taken to show that the plough horse can keep on doing his good work, none the worse for the hobby frisking alongside. Whether the relief asked for or given be philosophy, or philanthropy or literature,—read or made,—or a handicraft demanding skill, or the pursuit of science or a simple game, it should be followed as a hobby to be ridden carefully or merely fully. "Whatever thy hand findeth to do, do it with thy might," is a precept to be accepted with discretion, according to one's strength, and not by the blind following of the strenuous worker, the exceptional man or woman, whom nothing can tire. He is much more rare than his would-be imitators. He is a dangerous guide. It is "*thy*" might after all and not the might of the "don't worry" books.

There is such a condition as "neurasthenia," however much that misused word has been made the cover of foolish and ineffectual strain or, on the other hand, of incipient mental disease, or of mere indolence. But it is not so much the man of hobbies upon whom it comes as upon the man, the woman, driven by need or by conscience, to wearing overwork in a single direction or a more wearing responsibility, who cannot give herself the relief of the hobby, or even of the fad.

A distinguished educator in a discussion with a leader of labor ("*Labor*" in the official sense) said, in one of those lapses which even so clear a thinker and speaker as he is liable to make sooner or later, that the "joy of the labor" is a part of its compensation, neglecting the difference between the direction of a great educational institution, the upbuilding of which had been his life work, and on the other hand the dropping for hours, months and years into a machine of bits of metal to turn them out just alike; or the planning of a great business compared with the shoving for hours of the same sized bars through the same rollers, for the same wages—probably considered inadequate—or even, to come nearer, the leading of zealous students in fruitful research, and reading the examination papers of the dull average not good enough to be interesting nor absurd enough to be amusing.

President Eliot was right from his point of view; but the labor leader was unconvinced from his, as he had a right to be. He ought not to be content with his kind of work. He should have a hobby. I do not remember who he was, but perhaps his employment as a representative spokesman rather than an actual daily worker may have acted as his hobby and been the needful relief for him. If otherwise, a literary hobby, say the study of history rather than the reading of political economy or one-sided sociology; or better still a thorough out-door

hobby in which he should take an active part and not be contented with seeing others play, would tend to a healthy mind. For the brain-fagged, the two-sided outdoor hobby is the ideal, in which one learns something as well as makes something, puts the commonplace donkey-rider in the same class as the discoverer and the deer.

Who is the brain-fagged? A young girl in the hospital told me that her doctor had told her her "brain was all worn out." Further inquiry disclosed that her occupation had been pasting labels onto shoes.

The man who needs to "take no thought for the morrow, what he shall eat or what he shall drink, or wherewithal he shall be clothed," if he have no ambition to rise further in the same direction, must have a hobby for the salvation of his mind, his heart and his happiness. He may make a hobby of anything, even of the essentials of life. Even so the bon vivant, the epicure, is better than the mere gourmandizer or the drunkard. The dandy is a thing of greater joy to the public, even if not very important, than a careless sloven. If it is salvation to the man himself to have almost any reasonable hobby, it is an enduring joy to him and great profit to the world, that he should have one adapted to his talents and of altruistic direction. Fortunate for our country that the idle man is not the type held up for admiration before any but a very small fraction of the people, and that usefulness to others does not detract from the esteem in which the busy man is held.

But for the brain drudger, the accountant who feels when he has got to the end of his work day, that he cannot look at another figure, the typewriter whose machine has begun to dance over the table, the selector of colors to gratify an endless procession of different tastes, where each knows less than her predecessor, and so on down to the merest shoveler of gravel, needs a change from the day's work. In a vast proportion of cases this is merely amusement and nothing more. All work, be it little or great, is as nearly as possible stopped. Of course it is only the favored few who can have this, but it is not necessary, perhaps not even desirable, that every grade of mental activity should always be reduced to zero.

Biologic science naturally, almost inevitably, appeals most strongly to the medical practitioner, even in departments considerably removed from his daily work. He cannot help thinking of eugenics, for instance, and may make the most important contribution to that old—old but newly-named—branch, which he has constantly before him in every shape of diagnosis, pathology and therapeutics. If his daily practice enables him to straighten out some few threads of generalization, he is fortunate. The hereditary family practitioner has the best of opportunity among his human subjects and is the best man to look at this branch from all sides. Who but he can follow out the "dominant" and "reces-

sive" influences in the Mendelian maze, now left so largely to the novelist?

But if he follows beyond his own species, his range becomes wider and more generalized—as in botany and gardening. On the humbler side also it has its uses. I remember a good many years ago hearing a most philosophic practical surgeon, in sketching an ideal medical course, place a very high estimate on botany, among the elementary studies; but for what reason, think you? Because it gave the student useful practical knowledge of *materia medica*. I felt for years later that our honored colleague was making a mistake, in these days when the druggist is the man to *know* about drugs and can get his recreation elsewhere. Even he, as a rule, knows none too much about them beyond the name printed on the bottle. I was gratified to find myself justified in placing a more worthy estimate upon this study when I found these phrases in an appreciation of Sir William Gowers, one of the foremost of English neurologists, as follows:—

"The process of identification of plants by the descriptions, the training it involves in accurate observation and in giving the proper relative weight to different features is essentially the same as that which is needed in the diagnosis of disease. No subject affords mental training quite so effective for the practitioner's work." This remark was from a man who had taken shorthand notes on more than twenty thousand cases of nervous diseases.

How many thousands of physicians could we reckon, without going far into the past, who have been adepts in botany, who beginning perhaps in the *materia medica* point of view in their own gardens have derived lessons of biology of the higher interests to mankind. And we needn't go far to find botany linked with the widest, most far-reaching generalizations through the names of Agassiz, Gray, and Darwin. It is interesting to speculate on the reactions between Dr. Jacob Bigelow's "*Flora Bostoniensis*," his later works on Medical Botany, and his views in still later life on Nature in Disease and a more rational and scientific treatment.

As he gathered his specimens driving along the muddy roads "within four or five miles of Boston" more than a hundred years ago, did the thought enter his mind, "Let the children go without herb teas for a while. They will probably get well just as quick."

Such doubts as these seem also to have entered into the views of Dr. Alfred Stillé between the publication of his elaborate work on *Materia Medica* and Therapeutics, and that of the American Dispensatory.

Dr. H. C. Wood became a member of the National Academy of Science, not on account of his learned work on Therapeutics, but for his earlier knowledge of mycology.

Several of the official reports on the natural history of Massachusetts were prepared by active practitioners of medicine; that on Fish by Dr. Storer, professor of midwifery, that on Shells by Dr. A. A. Gould, one of the physicians of the Massachusetts General Hospital. I am not sure that Dr. Thaddeus William Harris, who prepared a most valuable work on "Insects Injurious to Vegetation," was a practitioner, although he was a graduate in medicine. He was for many years librarian of Harvard College.

George B. Emerson, author of the report on Forest Trees was for many years the leader of a well-known girls' school in Boston.

John E. Holbrook, who published an illustrated book on Herpetology, which was for many years the authority on the subject in the United States, was a professor of anatomy in the medical college of South Carolina.

Military glory has attracted more than one practitioner away from too strict devotion to business. Let us mention here the name of Major-General Dr. Appleton Howe of South Weymouth, of whom Dr. Jarvis remarked, "When he has on his uniform and draws his sword we do not dread him in the least, but when he takes up his lancet then we are afraid of him."

There may be one or two of us oldsters who have seen the little red tails of our beloved member, Lieutenant Col. Dr. C. C. Holmes' short jacket flopping briskly up and down against his plump posterior as he led the Cadets at double quick round the common. When he was one of Governor Andrews' trusted military advisors he had to say that he had had great numbers of requests for his interest in getting commissions for boys, none of whom had had anything approaching the experience which the business men are now getting at Plattsburg,—the successful ones got it later,—and he used to write letters telling the governor what fine fellows they were and how justly proud their fathers were of them; but it was understood that unless they ended with the phrase, "And I advise you to take him," they went for nothing. It is pleasant to think that his sacrifices to Mars never lost him many patients from Lucina.

And we must not forget that the ranking officer of the United States army was once an intern of the Boston City Hospital, entered the army through the medical corps, and that both his medical and military knowledge have been of the highest service.

Sir Robert Christison must have been a great ornament and delight in the profession at Edinburgh, where he lent dignity and learning to more than one professorship, was the author of a treatise on "*Materia Medica* and Toxicology," and another on "Bright's Disease," an experimenter in his own person on numerous drugs, and an expert in court so exact and so clear that

he habitually escaped the heckling to which other less careful men have to submit. He was an athlete of renown through his long life, as a walker, a sprinter, and mountain climber, while his stately figure and flowing white locks made him a marked man as he stood on parade at the head of his company in the University Battalion at the age of seventy-seven.

Aquatic sports have attracted many of our profession. New England's sea coast has been the playground of some of us, as is befitting in those of Cape Cod lineage. I have myself taken many a rest as opportunity has offered, both with oars and sails, from the Charles to the Mississippi. The good which comes from rowing, both physically and mentally, cannot be half so graphically set forth by anyone else as by Dr. Holmes, and I will quote a little more at length from his description of his voyages of discovery over the flats of the Charles River when it was a river, long before it had become a fresh water basin. The wherry in which he voyaged I used to see in the cellar of the old, not the most recent "old," but the old "old" medical school in North Grove Street, as I passed through it to the dissecting room.

"Here you are, then, afloat with a body a rod and a half long, with arms, or wings, as you may choose to call them, stretching more than twenty feet from tip to tip; every volition of yours extending as perfectly into them as if your spinal cord ran down the centre strip of your boat, and the nerves of your arms tingled as far as the broad blades of your oars,—oars of spruce, balanced, leatherned and ringed under your own special direction. This, in sober earnest, is the nearest approach to flying that man has ever made or perhaps ever will make.* As the hawk sails without flapping his pinions, so you drift with the tide when you will, in the most luxurious form of locomotion indulged to an embodied spirit. But if your blood wants rousing, turn round that stake in the river, which you see a mile from here; and when you come in in sixteen minutes (if you do, for we are old boys, and not champion scullers, you remember), then say if you begin to feel a little warmed up or not! You can row easily and gently all day, and you can row yourself blind and black in the face in ten minutes, just as you like. It has been long agreed that there is no way in which a man can accomplish so much labor with his muscles as in rowing. It is in the boat, then, that man finds the largest extension of his volitional and muscular existence; and yet he may tax both of them so slightly, in that most delicious of exercises, that he shall

mentally write his sermon, or his poem, or recall the remarks he has made in company and put them in form for the public, as well as in his easy-chair.

"I dare not publicly name the rare joys, the infinite delights, that intoxicate me on some sweet June morning, when the river and bay are smooth as a sheet of beryl-green silk, and I run along ripping it up with my knife-edged shell of a boat, the rent closing after me like those wounds of angels which Milton tells of, but the seam still shining for many a long rood behind me. To lie still over the flats, where the waters are shallow, and see the crabs crawling and the sculpins gliding busily and silently beneath the boat; to rustle in through the long marsh grass that leads up some tranquil creek; to take shelter from the sunbeams under one of the thousand-footed bridges, and look down its interminable colonnades, crusted with green and oozy growths, studded with minute barnacles, and belted with rings of dark mussels, while overhead streams and thunders that other river whose every wave is a human soul flowing to eternity as the river below flows to the ocean,—lying there moored unseen, in loneliness so profound that the columns of Tadmor in the Desert could not seem more remote from life, the cool breeze on one's forehead, the stream whispering against the half-sunken pillars,—why should I tell of these things? That I should live to see my beloved haunts invaded and the waves blackened with boats as with a swarm of water-beetles! What a city of idiots we must be not to have covered this glorious bay with gondolas and wherries, as we have just learned to cover the ice in winter with skaters!"

Our old teacher of anatomy and of social philosophy speaks of some other forms of exercise with modified respect, but his summing up, "I am satisfied that such a set of black-coated, stiff-jointed, soft-muscled, paste-complexioned youth as we can boast in our Atlantic cities never before sprang from loins of Anglo-Saxon lineage," reads very queerly in the light of the "athletic pages" of our daily press. The "aerial swimming," which he speaks of as what "some fancy is to be a conquest of the future," he came within but a few years of seeing.

Is it possible that the lure of salt water had any share with philanthropy in making Grenfell the guardian angel of Labrador?

Probably a very much larger proportion of physicians have made side excursions into more or less unprofessional literature than into any other so easily accessible.

The greatest of the poets, who even the most liberal construction will allow us to reckon as a disciple of Aesculapius, was Schiller, who was indeed rather a forced recruit, for he was not very far beyond his boyhood when he was driven

*"The boat flies like a sea-bird with its long, narrow, outstretched pinions; the bicycle rider, like feathered Mercury, with his wings on his feet. There seems to be nothing left to perfect in the way of human locomotion but aerial swimming, which some fancy is to be a conquest of the future."

Will the chug-chug boat drive rowing to become a mere specialty among the higher universities?

from his post of ill-paid army surgeon at the age of twenty-three, to rise rapidly to the first rank in literature, long before he could have suffered from the monotony of medical life.

Poets of a lesser rank on both sides of the water could undoubtedly be reckoned in large numbers by those more learned than myself.

Smollett, who for many years throve only moderately as a practitioner, held for a time the position of the first of English novelists.

Akenside, who is described in the Encyclopedia as an "acute and learned physician," and who was made, for political reasons, physician to the queen, and his political works included in an edition of the British poets, had an unsympathetic character and a sarcastic style which prevented the success to which his learning and ability entitled him.

On this side of the water one has but to mention the names of Holmes and of Mitchell as worthy the highest honors in both professions. It is said that Mitchell asked Holmes' advice,—being much the younger man,—as to adopting literature as a profession and was advised against it, which has been a great gain to neuropathology, certainly with no corresponding drawback on the other side of his work. The work of Mitchell has been of the best, but he will probably be remembered, even among the novel readers of his own profession, for his work on "Injuries to Nerves" and his "Fat and Blood and How to Make Them," more than for his novels.

I do not think Holmes was ever more than a moderately successful practitioner, but soon became, outside of his specialty, almost exclusively a literary man, never, however, losing his interest in medical science. It was said that he himself claimed more credit for his work on the contagiousness of puerperal fever than for anything else he had done.

In the broad field of letters, where he so frequently and delightfully appeared as physician, essayist, social critic, and philosopher, where pseudo-science was ruthlessly punctured, medieval theology and medieval medicine good-naturedly satirized, and where too confident youthful enthusiasm was good-humoredly rebuked, he was inimitable. If he had a weakness on this field it was in his inability to resist the temptation to sacrifice scientific accuracy to an epigram. I was fortunate enough to hear that address to the Massachusetts Medical Society which deeply wounded some of his less progressive brethren, but which has been incorporated into so much of present-day practice; a recent re-reading only increases my respect for its sound sense and scientific accuracy as well as its rhetorical charm.

NOTES OF A CONFERENCE ON THE MEDICAL AND SOCIAL ASPECTS OF SYPHILIS OF THE NERVOUS SYSTEM.

HELD AT THE PSYCHOPATHIC HOSPITAL,
MAY 27, 1915.

(Continued from page 922.)

V.

MENTAL FEATURES OF CONGENITAL SYPHILITICS.*

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- II. THE MENTAL PHENOMENA IN SIXTY CONGENITAL SYPHILITIC CHILDREN COMPARED WITH SIXTY NON-SYPHILITIC CHILDREN.
- III. THE MENTAL PHENOMENA IN FAMILIES WITH CONGENITAL SYPHILITIC CHILDREN.
- IV. CONCLUSIONS.

i.

The purpose of this paper is to draw attention to the pathological mental phenomena in congenital syphilis. For a long time there has been a more or less generally recognized group of mental conditions that were ascribable to this factor in heredity, but of late years there has been a more specific recognition both of the disease and its immediate connections. Very many of these abnormal mental conditions are acquired early and before the brain has completed its development. Others are of a less tangible nature and have not been definitely associated with syphilis. If one considers the four main types of abnormal states; namely, psychoses, feeble-mindedness, delinquency, psychoneuroses, one can trace something more than the former indefinite associations. Many of these conditions come in middle life and are ascribable to some endogenous factor. The grounds on which feeble-mindedness is related to syphilis are many and have for a long time been recognized. Delinquency can be ascribed to syphilis only as the two

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are connected with some kind of emotional instability or some psychopathic inferiority. The percentage of delinquents who are actually feeble-minded is probably around 15 or 20, but outside of this there must be a larger group of 30 or 40% which is connected somehow with constitutional psychopathic inferiority. At the most, it would be extravagant to say that more than 30% of the delinquents could be connected with congenital syphilis. In regard to the endogenous psychoses and the psychoneuroses, there is good ground for definite causal relation. Mott has pointed out that it is the tendency of such a psychosis as dementia praecox to die out of the race, as its earlier appearance in successive generations causes the stock to cease to propagate. But as this psychosis seems to be on the increase, there must be some extraneous factor producing it anew. This factor, he suggests, may be syphilis. Meggendorf comes to a similar conclusion after a somewhat protracted study. Freud states that in more than one-half of the severe cases of hysteria, compulsion neuroses, etc., which he had treated by psychotherapy, he positively succeeded in demonstrating that the fathers had gone through an attack of syphilis before marriage; they had either suffered from tabes or paresis or there was a general history of lues. He expressly adds that the children who were later neurotic showed absolutely no signs of hereditary lues, so that the abnormal sexual constitution was to be considered as the last offshoot of a luetic heredity.

There is a similar truth in the overstatement of Dr. Thomas at the Alameda County Medical Association in December, 1912. He affirmed the clinical evidence of the stigmata of syphilis to the third, fourth, and even later generations; claimed that neurasthenia is absolutely caused by syphilis, being a distinct physical disease of the brain and cord; and stated that non-syphilitic alcoholic parents do not beget the idiotic, defective children, but rather the alcoholic syphilitic parents do.

Besides these speculations which have become more definite in our day, there is a certain number of conditions in which the effect of the inherited syphilitic taint can not be doubted. Our interest in this paper will lie in the mental development of these congenital syphilites. First, it is necessary in each case to be sure of the diagnosis, and in the past this has been done mostly on the basis of observation. It is unnecessary to review these various stigmata on which one can make a positive diagnosis. Before the laboratory tests, this was the only means beside the family history of making a diagnosis, and consequently these stigmata have been carefully denoted. When certain of the most characteristic signs are present, there can be no reasonable doubt as to the existence of congenital syphilis. Thus the presence of the Hutchinsonian triad is sufficient for diagnostic purposes. The second method of diagnosis was from a fam-

ily history of syphilis, numerous miscarriages, and numerous still-births, but the literature affords us plenty of evidence that this is not sufficient ground. The third method, namely the Wassermann reaction and the examination of the cerebrospinal fluid, is more definite and accurate, and has added much to our diagnostic ability. On the basis of these three methods of examination, viz: the laboratory tests, the physical stigmata, and the positive family history, it is possible to make the following division in cases of congenital syphilis:

Group 1.

- a. Those with a positive spinal fluid which would include such types as juvenile general paresis, juvenile tabes dorsalis, epilepsy and cerebrospinal syphilis.
- b. Those with a negative spinal fluid including such types as optic atrophy (optic tabes), epilepsy and hydrocephalus.

Group 2.

- a. Those in which the blood is positive and the physical stigmata are present.
- b. Those in which the blood is positive and the physical stigmata are absent.
- c. Those in which the blood is negative but the physical stigmata are present and the family history is positive.
- d. Those in which the blood is negative and the physical stigmata are absent but the family history is positive.

One could not expect to find different types of mental conditions corresponding to this grouping, but this grouping is serviceable in indicating the degree of physical and mental disturbances and allows a more definite determination than we have hitherto used in the study of a group of this disease. Different cases might be cited to show the abnormal or deteriorated mental symptom in the individuals in these groups but the variations on the mental side are too numerous to parallel the laboratory and physical determinations.

In order to ascertain how the mentality of congenital syphilites compared with non-syphilites, some 440 hospital cases were gone over and it was found there were 60 under 15 years of age who could be put down as definite congenital syphilites. Along with these, 60 non-syphilitic cases were taken for the sake of comparison. In every case the laboratory tests had been made, a male was matched with a male, a Russian with a Russian, and one of 10 years with another of 10 years, and in the whole series of 120 there were only three instances where it was impossible to match for age, sex and nationality. There were nearly a dozen instances in which a choice between two was possible, but in every such case the latest was taken, since in these the examinations are more thoroughgoing. The 60 congenital syphilites

were found to group as follows, and it was pure chance that they turned out to be 30 males and 30 females:

GROUPING OF 60 CONGENITAL SYPHILITICS BASED ON LABORATORY FINDINGS

	M	F
I. Fluid		
a. Positive	1	1
b. Negative with Phys. Stig.		3
II. Serum		
a. Positive	5	10
b. Positive with Phys. Stig.	13	13
c. Negative with Phys. Stig.	9	0
d. Negative with Family History	2	3
	30	30

ii.

The comparative mentality of these 60 syphilitics with 60 non-syphilitics is shown in the following summarized statistics in regard to *development, diagnoses, defects in sense organs, defects in mental processes, and delinquencies.*

In regard to *development*, it seemed best to take the Binet age, since these cases go back nearly three years and in every case the Binet had been done, whereas the Point Scale had been applied only in the last year. The average age of the syphilitics and non-syphilitics was, of course, the same, namely, 10.3 years. The average Binet age of the syphilitics was 6.2 and of the non-syphilitics 7, so that the deficiency among the former was 4.1 years as compared with 3.3. Next, the school grades were considered and among the syphilitics there were 36 cases of backwardness in school as compared with 24 cases in the non-syphilitics.

The *diagnoses* were considered either *feeble-minded*, which was taken to be a mentality below 12 years, or at least two years below the actual age, along with indications of feeble-mindedness on family, social, economic and moral lines; or *retarded*, which meant not sufficient to be called feeble-minded yet behind the actual age, and of these cases some eventually become feeble-minded; or *defective*, which meant neither of the above but a subject having some special defects in the larger mental processes which came to the front in the examination; or *normal*; or *supernormal*. The results of the 120 individuals differentiated on these grounds are as follows:

	Syphilitics	Non-Syphilitics
Feeble-minded	29	25
Retarded	19	12
Defective	4	7
Normal	6	14
Supernormal	2	2
	60	60

Next, the *defects* in the sense-organs of vision and hearing and the development of speech were considered, since any handicap in these manifests itself in the mental development. In re-

gard to speech there were nine syphilitics compared with none in the non-syphilitics. The fact of this disproportion and the preponderance of speech defects over vision and hearing give some support to a point recently put forth by Dr. Walter B. Swift in the Pediatric Society meeting for April, to the effect that there was a distinctive voice sign in congenital syphilis. This he characterized as having a certain roughness and harshness, and a certain inability to go from a low to a high pitch, and return. He emphasized the characteristics and this examination shows the frequency of defects in speech in congenital syphilitics. A tabular view of the defects found in the 120 children is as follows:

The Three Types	Syphilitics	Non-Syphilitics
Speech	9	0
Vision	5	2
Hearing	3	3
Plural Defects in One Individual		
None	43	55
One Only	11	3
Two	2	2

From this table one might say that in the congenital syphilitic individuals there are more apt to be plural defects.

For the sake of comparing the *defects* in the mental processes these were divided into the four groups of receptivity, imagination, affectivity and thought. Receptivity was taken to include perception, elementary association, range of observation and discrimination. Imagination was taken to cover memory proper, analytical ability, learning ability, planning ability and imagination. Affectivity was taken to cover suggestibility, volition, concentrated attention and emotional instability. Thought was taken to cover reasoning, judgment, comprehension and apperception. These results are represented below:

DEFECTS IN MENTAL PROCESSES.

The Four Types	Syphilitics	Non-Syphilitics
Receptivity	25	16
Imagination	22	19
Affectivity	24	29
Thought	19	17
Plural Defects in One Individual		
None	12	12
One Only	15	21
Two	18	14
Three	9	10
Four	5	2
Five	1	1
	60	60

The results indicate that in the mental processes as in the special organs just considered, in the syphilitics there are more apt to be plural defects in one individual.

The *delinquencies* were treated under three groups, individual, property and society. Individual delinquencies were considered to be those of truancy, stubbornness, incorrigibility.

lying and sex. The property delinquencies were considered to be larceny, destruction, setting fires and breaking and entering. The society delinquencies were considered to be disorderly conduct, contentiousness, fighting, carrying concealed weapons, assault with intent to do bodily harm and minor offences. The results of this treatment are represented in the following table:

DELINQUENCIES.

The Three Types	Syphilitics	Non-Syphilitics
Individual	32	21
Property	13	15
Society	3	3
Plural Delinquencies in One Individual.		
None	24	32
One Only	18	18
Two	8	3
Three	7	4
Four	3	2
Five	0	1
	60	60

The same inference is apparent in the delinquencies as in the other defects, namely that the syphilitics are more apt to manifest plural delinquencies in one individual than are non-syphilitics.

If one looked over these results to note the instances where the syphilitics were inferior, equal or superior from the mental and social point of view to the non-syphilitics, one would find that there are twenty instances of inferiority, six instances of equality and six instances where the syphilitics are more favored. In summarizing, one could rightly say that in the 120 individuals under 15 years, all of them presenting acute social problems and all standing on the same ground except for this one factor of congenital syphilis, those that come in such a group present the greater social problems.

iii.

In many cases it is possible to outline a definite family pathography in regard to congenital syphilis. The picture before and after the syphilitic invasion is generally a contrast between normal mental development and under-development with early deterioration. For the sake of emphasizing this before and after picture of the mental development four families are taken from among the records of children looked up in Section III.

In the first family the father and mother represented normal development and intelligence to all appearances. The first child is a living male of 16 who is exceptionally bright. The second is a living female of 9, who is exceptionally bright. The third is a living female of 7, reported by her school teacher as being exceptionally bright. The fourth child is a living female of 6, who came after the infection. Her mental age is that of a 3-year-old child and in

the past two years she has grown progressively worse. The neighbors say she has changed in "character, disposition and mind," and her school teacher says she is as different from what she was as "dark is from light." The fifth child was a female that died at 9 months. The sixth child is a living male of 3 with characteristic physical ailments and slight retardation in mental development. The seventh child is a living female of 11-2 years, and the eighth child is a living male of 3 months. These latter two appear normal as yet.

In the second family the father and mother are normal physically and of average intelligence. The first child is a female of 12, who measured on the Binet 12, and on the Point Scale 15. She is reported from school as exceptionally bright. Then there came the infection, and this was followed by one miscarriage. The third child is a female of 11, who is feeble-minded, measuring on the Binet 8-1-5, and on the Point Scale 8.3. This birth was followed by another miscarriage.

In the third family the father suffers from alcoholic deterioration and tuberculosis, and the mother is apparently normal. The infection in this case was followed by a female now living at 10 years of age, who is mentally two years retarded and suffers from cerebrospinal syphilis. The second child is a living female of 7, who is one year retarded in mental development. The third is a female of 5 years, one year retarded and suffering from congenital syphilis. The fourth child is a living female of 3 years, apparently normal as yet.

In the fourth family the father is 62 and suffers from gonorrhea. The mother is 46 and has not been well since marriage. The infection was followed by a male child who died at 11 months of diphtheria. The second child was a male who died at 18 months of pneumonia and scarlet fever. The third child was a male who died at 22 years of tuberculosis. Throughout his life he suffered from convulsions. The fourth child was a male who died at 20 of pneumonia. The fifth child is a male living at 18 with juvenile general paresis and mental deterioration. The sixth child, a female, is living at 16 with cerebrospinal syphilis and mental deterioration. The seventh was a still-birth at 8 months. The eighth was a female child who died at 14 months with spinal meningitis and convulsions. This child was followed by a miscarriage at 3 months.

iv.

The results of this study can be set forth as follows:—

1. There is increasing authority for considering the endogenous psychoses and the psychoneuroses to be the last offshoots of luetic heredity.
2. The laboratory findings afford the best

classifications of congenital syphilis and there are six possible groups on this serological basis:

3. Of children under 15 years constituting social problems, the congenital syphilites constitute the more serious problems. Among them there are more cases of backwardness in school, there is more feeble-mindedness and retardation, there are more defects in the mental processes (with the one exception of affectivity), there are more delinquencies, there are more defects in vision, hearing, and speech. And if we consider the single individuals with one or more defects, then in the syphilites there are more individuals with plural defects in the mental processes, there are more individuals with plural delinquencies, and there are more individuals with plural defects in the two main sense-organs and in speech.

4. In families where the syphilitic infection makes its appearance the before and after picture in the mental development of the children is clearly delineated. In two families the earlier children were exceptionally bright in school. Then there came the syphilitic invasion and the following children are feeble-minded in early youth and show a rapid deterioration of mentality. In another family the infection was followed by two children who are victims of cerebrospinal syphilis and two children who appear normal as yet, but three of the four children are retarded in mental development, two at least two years, and one one year. In another family of nine children the infection was followed by miscarriages, still-births, and early deaths until today but two of the nine children are left, and one of these is a victim of general paresis with mental deterioration and the other a victim of cerebrospinal syphilis with deterioration.

We are indebted to Dr. H. C. Solomon for the determination of the syphilitic and non-syphilitic individuals and families.

VI.

DIAGNOSTIC VALUE OF LANGE'S GOLD SOL TEST. (BASED ON 500 EXAMINATIONS OF THE SPINAL FLUID.)

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Three years have elapsed since Lange published his original communication on the colloidal gold test for cerebrospinal fluid. At this time he made a number of suggestions as to its

diagnostic value.^{2, 3} Several workers following him have confirmed many of his findings. This communication is a survey of the results obtained at the Psychopathic Hospital with this test during a little more than a year in the examination of the cerebrospinal fluids from 500 patients, a number of whom have had several punctures. One hundred and thirty-five of these fluids were reported in the *BOSTON MEDICAL AND SURGICAL JOURNAL*, December 10, 1914.¹³

We will not discuss the technic of the test as this will be found ably described in several of the articles,^{2, 3, 7, 8, 9, 10} the references to which are appended. It may be well, however, to call attention to some difficulties and precautions. At times it is with the utmost difficulty that a satisfactory solution is obtained. One prepares the agents as usual and yet the resulting solution is not as it should be. No reason is found for this, and after numerous tests in which no change in technic is made, a perfect solution is obtained. One must be careful in the selection of a solution, as certain solutions which look right will not give satisfactory results; that is, a solution may be too sensitive or not sensitive enough. Thus, an over-sensitive fluid will give strong reactions with fluids from apparently negative cases, and a too stable fluid will not give sufficiently strong reactions. In order to be certain of one's results, it is necessary to run controls with every new solution, using at least one known negative and one known strongly positive fluid; if this is not done one cannot feel confident of the results obtained.

Stated briefly the following diagnostic results have been claimed for the gold sol test:—

1. General paresis gives a typical reaction, the so-called "paretic" reaction.
2. Syphilitic cases give a reaction in low dilutions ranging from 1/10-1/320, called the "syphilitic zone."
3. Tabes and cerebrospinal syphilis give reactions in the syphilitic zone, but differing from the reaction given by general paresis in being weaker.
4. Tuberculous meningitis and brain tumor with inflammatory products in the fluid give reactions outside the "syphilitic zone," that is, in the higher dilutions.
5. Purulent meningitis gives a reaction differing from syphilitic meningitis.
6. The test will often give the only evidence of syphilitic involvement of the central nervous system in latent syphilis.
7. Fluids from normal patients or from patients having no inflammatory conditions of the central nervous system will give negative reactions.

The test is performed with ten dilutions of spinal fluid ranging from 1/10-1/5120 and the color change of the reagent varies from the

* Being S. R. I. Contribution whole number 127 (1915.30).
Bibliographical Note.—The previous contribution was by J. H. Basley and H. M. Anderson, entitled "Mental Features of Congenital Syphilis," *BOSTON MEDICAL AND SURGICAL JOURNAL*, Vol. cxxiii, No. 26, p. 952.

negative red through red-blue, blue-red, blue, lilac to colorless, depending on the amount of colloidal gold precipitated. These results may be plotted, using the dilutions for the abscissa and the color range for the ordinate. Or more simply, one may indicate the results by numbers, calling the negative red 0, the red-blue 1, the blue-red 2, the blue 3, the lilac 4, and the colorless 5, placing these on a horizontal, the ten divisions of which represent the ten dilutions.

Using this latter scheme, the "paretic reaction" would be represented as

5 5 5 5 4 3 1 0 0

That is to say, the reaction has gone to its full intensity in the tubes of lowest dilution, running through a number of dilutions and then disappearing. This reaction may run through a lesser or greater number of tubes, but in order to be accepted as "paretic" it must begin with its full intensity in the first tubes of the series.

The "syphilitic zone" includes the first five to six dilutions, that is the dilutions of 1/10 to 1/160 or 1/320. In tabs, cerebrospinal syphilis, etc., the reaction then should be something as follows:

1 2 4 4 2 1 0 0 0, or
3 3 3 2 1 0 0 0 0, or

it may show other types of reaction, the essential points being that the reaction occurs in the lower dilution but does not run to its maximum possible intensity in the first one or two tubes.

Tuberculous meningitis and brain tumors give a reaction in which the height of the curve is outside the "syphilitic zone."

0 0 0 0 1 3 3 1 0, or
0 0 1 2 3 4 4 3 2 0

An entirely negative reaction causes no color change throughout.

0 0 0 0 0 0 0 0 0 0

The reaction is due to the presence of abnormal albuminous material, or possibly the presence of an excessive amount of the normal. The test is based on the empirical fact that the colloidal gold may be used for qualitative albumen determinations, depending on differing reactions, according to dilutions.¹ The normal quantity and quality of cerebrospinal fluid albumen gives no reaction with the solution as used. The presence of a color change or positive reaction indicates a change in the albumen content. So in any case in which there is a variation from the normal content may be expected to give a reaction, and this reaction will depend rather on the quality of the albumen than on its quantity. Thus in the case of a purulent meningitis with enormous quantities of albumen, the reaction was but very slight and only in the higher dilutions, while in another case giving but a small excess of albumen but in a case of general paresis, the reaction was a typical paretic one. It is to be assumed then that various disease condi-

tions cause the formation of different kinds of albumens, that is, there is a different albumen in the fluid in tuberculous meningitis than in general paresis. If this is the basis of the test there is nothing *a priori* against several different diseases causing the same reaction.

It is our purpose to analyze the results of the tests of the 500 patients in the light of the above-mentioned contentions and to offer such criticisms and conclusions as seem warranted from the series. In a test of such an empirical nature this group is quite small, but as it is larger than any other we have been able to discover in the literature it may have some value. In each case here reported the diagnosis is that made after considering the various clinical symptoms and laboratory tests. In practically every instance, in addition to the gold sol test there is a blood serum Wassermann reaction, spinal fluid Wassermann reaction, cell count, Nonne-Apelt globulin test, and Mestrezat albumin test.

ANALYSIS OF RESULTS IN 500 CASES.

Group I. Clinical diagnosis. Syphilitic involvement of central nervous system, including general paresis, cerebrospinal syphilis, tabes dorsalis, juvenile cerebrospinal syphilitic disease, Erb's spinal paralysis, "paresis sine paresi."

1. General paresis 118 cases
 - (a) Typical "paretic curve" 114
 - (b) Atypical curve 4

In three of the four atypical curves the curve was a very close approximation of the "paretic," being of that type, 4443332211. In one it differed markedly, 2223310000, resembling the "cerebrospinal syphilis" curve.

In addition it is to be noted that slight changes have been found in the form of the curve in several cases punctured at intervals. This is quite frequent in cases receiving intravenous injections of salvarsan or intradural therapy,^{10, 15} but also occurs in others.

Percentage giving typical reaction 96.6%
Percentage giving almost typical reaction 2.63%
Percentage giving atypical reaction 0.87%

2. Cerebrospinal syphilis 11 cases
 - (a) "Syphilitic zone—non-paretic" 8-9
 - (b) "Paretic curve" 1-2
 - (c) Negative reaction 1

One case which gave "syphilitic zone—non-paretic curve" on first examination gave the typical "paretic curve" on a second examination 4 months later. The "paretic curve" case gave this reaction on 4 successive fluids over a period of 3 weeks, but after several weeks' treatment with mercury presented an essentially negative fluid to the other tests and the following gold sol reaction: 0011100000. The case giving the negative gold sol reaction had other spinal fluid tests negative, but a positive blood serum Wassermann,—headache, ptosis, strabismus, diplopia.

of Adolf Meyer¹⁷ that the gold sol test is the basis of our conception of general paresis. Bearing this warning in mind, we find that of the 114 cases diagnosed as general paresis all but one, or 99.17%, give the "paretic reaction," so it seems safe to believe that in the vast majority of instances the cases which do not give this reaction will not prove to be paresis. But, unfortunately, the converse does not seem to be true, for cases other than paresis may give the typical "paretic reaction." Thus of the 11 cases diagnosed cerebrospinal syphilis there are two which give this reaction. On one the diagnosis was confirmed by the fluid tests becoming negative under treatment by injections of mercury salicylate, the other showing at one time the lighter reaction and later the full "paretic reaction." Eleven cases are too few to give percentages that have any value, but it is of some interest to note that one case which showed positive Wassermann reaction in serum and fluid, a pleocytosis of slightly more than 100, an excess of albumin and globulin and a gold reaction of 11100000000 came to autopsy three days later and was shown to be a typical cerebrospinal syphilis. (This case should be kept in mind as it is referred to below in discussing the "light reactions.")

Our series contains only 5 cases of tabes dorsalis. One of these again gave the paretic reaction, a finding that has been observed by others. It must be remembered that it is possible that this case may be developing tabo-paresis.

There are six cases of congenital syphilis, giving evidences in the fluid of inflammatory involvement of the central nervous system. Four of these give the "paretic reaction," two do not, but give a lighter reaction. Five of the six cases merit the diagnosis of juvenile paresis, while in the sixth, which did not give the paretic reaction, there might be some question whether the parenchymatous cerebral structures were affected. At any rate one case diagnosed juvenile paresis did not give the paretic reaction.

There are seven cases showing no other evidence of syphilis and having negative Wassermann reactions in both spinal fluid and blood serum, but which give the "paretic reaction." These seven cases to our minds are conclusive evidence that this reaction does not necessarily mean general paresis nor even syphilis. It may be noted that each of these seven was a case in which organic changes in the central nervous system were undoubtedly in progress, and six of them showed marked excess of albumin and globulin in the fluid.

From these 149 cases we feel justified in offering as a tentative conclusion that general paresis cases will in the vast majority of instances, especially if more than one sample of fluid is tested, give the "paretic curve," but that this curve may be given by the fluids from cases of syphilitic involvement of the central nervous system other than general paresis and also by

fluids from non-syphilitic cases, so that the "paretic curve" by itself is not sufficient evidence of paresis or even of syphilis. If, however, a fluid giving a positive Wassermann reaction does not give a "paretic curve" or one closely approximating it, it is strong presumptive evidence that the case is not one of general paresis. Thus the reaction has considerable value at times in the differentiation of certain cases of cerebrospinal syphilis and tabes dorsalis from general paresis.

The next point to be considered is the meaning of reactions in the "syphilitic zone," that is, reactions taking place in the first five or six tubes, or in the dilutions of 1/10 to 1/320. As has been seen, it is in these dilutions that the fluids from cases of cerebrospinal syphilis and tabes react, and it is outside of this zone in the higher dilutions that the fluids from purulent meningitis, tuberculous meningitis, brain tumor, etc., characteristically react, hence the assumption has been made that fluids reacting in the lower dilutions spelled syphilis in the subject. And as a certain percentage of the cases from which this reaction was obtained showed a positive Wassermann reaction in the blood, it was stated that this gold sol reaction in the "syphilitic zone" might indicate a syphilitic involvement of the central nervous system, and might be the only evidence of it. Thus the reaction of fluids from the Mongolian idiots in this zone has been offered as evidence that the condition is a result of syphilis.²⁰

Reference to Groups III and IV discloses about 40% of the cases having negative spinal fluid Wassermann tests showing reaction in this zone, and the percentage is as high in the cases whose blood serum reacted negatively as in those where it was positive. It is true that the reaction is not very strong in the majority, that is, most of the reactions only ran as high as "1" or "2." Due to the finding that so many fluids, which to the usual tests are negative, give this gold sol reaction, it has been held by some that this high reaction should not be considered. Thus Flesch¹² found 50% of his ~~supposedly normal~~ fluids giving some reaction, so that he was prone to consider that these reactions should not be considered positive unless the reaction was "3." But as about 60% of the fluids which were expected to give entirely negative reactions did give such a negative reaction, it seems that the color changes, even though not very marked, do mean positive reactions. In support of this idea we find that in a fair percentage of these cases there is a very slight globulin test, or a small increase of albumin or both. In a few the sugar content of the fluid varied considerably from the average. These findings seem to bespeak a not entirely negative spinal fluid. But more to the point in considering these light reactions is that many of the known inflammatory conditions give just this type. Thus the autopsied

case of cerebrospinal syphilis, mentioned above, although showing marked products of inflammation in the fluid, gave a lightest possible reaction. Tabes and cerebrospinal syphilis frequently give these light reactions, but finding other tests positive in these cases we do not hesitate to call this reaction positive. Also cases of purulent meningitis and tuberculous meningitis likewise may give the weak changes. So we believe that these small changes do have a significance, but that we do not know what it means. But it is further found that a small percentage of the negative cases give a fairly strong reaction in this zone. We therefore conclude that there is no justification for making a diagnosis of syphilis on account of a gold sol reaction in the lower dilutions unless supported by other tests. The term syphilitic zone we consider a misnomer.

Our cases of brain tumor (10) and tuberculous meningitis (5) are too few to give any important percentages. These two conditions, according to the literature, give reactions in higher dilutions than the syphilitic cases, although at times it is stated, the reaction may occur in the lower dilutions. Our results, as may be seen from the charts, bear this out fairly well, so that it may be stated that the fluids from cases of brain tumor or tuberculous meningitis will usually give reactions in higher dilutions than the syphilitic cases and thus a test offers a helpful point in differentiation.

For the remainder of the conditions examined, no conclusions of diagnostic value seem justified.

CONCLUSIONS.

1. Fluids from cases of general paresis will give a strong and fairly characteristic reaction, especially if more than one sample is tested, in the vast majority of cases.
2. Very rarely general paresis fluid will give a reaction weaker than the characteristic one.
3. Fluids from cases of syphilitic involvement of the central nervous system other than general paresis often give a weaker reaction than the paretic, but in a fairly high percentage of cases give the same reaction as the paretics.
4. Non-syphilitic cases may give the same reaction as the paretics; these cases are usually chronic inflammatory conditions of the central nervous system.
5. When a syphilitic fluid does not give the strong "paretic reaction" it is good presumptive evidence that the case is not general paresis, and this test offers a very valuable differential diagnostic aid between general paresis, tabes and cerebrospinal syphilis.
6. The term "syphilitic zone" is a misnomer, as non-syphilitic as well as syphilitic cases give

reactions in this zone, but no fluid of a case with syphilitic central nervous system disease has given a reaction out of this zone, so that negatively it may be used, and any fluid giving a reaction outside of this zone may be considered non-syphilitic.

7. Light reactions may occur without any evident significance, while a reaction of no greater strength may mean marked inflammatory reaction.

8. Tuberculous meningitis, brain tumor and purulent meningitis fluids characteristically, though not invariably, give reactions in higher dilutions than syphilitic fluids.

9. The unsupplemented gold sol test is insufficient evidence on which to make any diagnosis, but used in conjunction with the Wassermann reaction, chemical and cytological examinations, it offers much information aiding toward the differential diagnosis of general paresis, cerebrospinal syphilis, tabes dorsalis, brain tumor, tuberculous meningitis, purulent meningitis.

10. We believe that no cerebrospinal fluid examination is complete for clinical purposes without the gold sol test.

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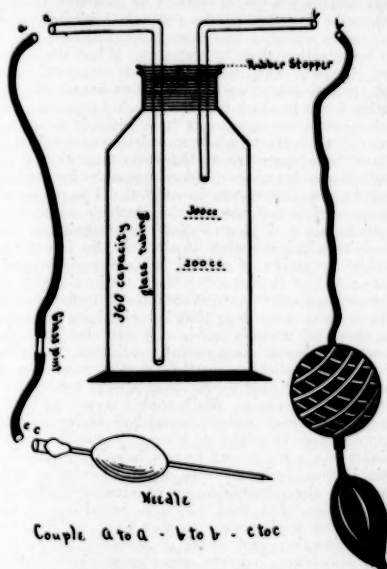
(Series to be continued.)

New Instrument.

A SALVARSAN APPARATUS.

By CHAS. F. DENNY, M.D., St. Paul, Minn.

The accompanying sketch represents a useful and simple Salvarsan apparatus which is much used here.



It is reliable, practical, and simple, also it is easily constructed by any one at small cost.

Take a wide mouthed bottle of 360 c.c. capacity, fit it with a rubber stopper perforated for two glass tubes as you would a wash bottle.

Take 26 inches of rubber tubing to fit the glass tubes, cut it 18 inches from the end and make a glass joint with the smaller cut end of the tube.

The long glass tube reaches to the bottom of the bottle and is to be connected with the rubber tubing into the end of which the needle coupling is inserted.

The short glass tube is connected with a double bulb such as is used with a thermocautery.

It is now ready for use after the salvarsan solution is poured in the bottle.

The stopper is fastened down by a wire or strips of plaster over the cork and around the neck of the bottle.

After the needle is inserted into the vein and the coupling is made, a few squeezes of the bulb are all that is necessary to force it slowly and steadily into the vein.

Care is taken not to allow air to enter the vein at the end of the injection.

The sketch renders more detail unnecessary,

Society Reports.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, MAY 5, 1915, AT 8 P. M.

The President, Dr. JAMES C. WILSON, in the Chair.

CARDIOVASCULAR POISONS; THEIR METHODS AND RESULTS

Dr. ROBERT N. WILLSON: To those who know the heart simply as a muscular pump, the function of which is to supply the various parts of the body with blood, the term cardiovascular poison will mean little more than a drug, which causes the heart to misbehave, or to functionate badly. It is no very recent discovery that if any human organ is overrich in its nervous supply, the heart is that one.

It is an exceedingly important item of knowledge that one of the main nervous distributions in the heart is subendocardial. Highly important also is an appreciation of the probability that the cardiac nervous structures enter in greater or less degree into the inception, and the discharge of each and all of the main functions of the heart. Of three groups of cardiovascular poisons, here briefly discussed, the first is decomposition of food products. These I believe constitute the causal factor in arterial changes and the hypertension contributing so actively to the cardiac disease of later years. A second class of cardiovascular poisons consists of microörganismal influences which make their attack from without. The infectious diseases approach without adequate warning, and the harm is accomplished before the danger is realized. Syphilis, tuberculosis, rheumatism so-called, and diphtheria illustrate fairly well the various forms of microörganismal invasion of the heart and vessels. Syphilis and tuberculosis begin with heredity and very frequently do we find the children of luetic or tuberculous parentage the subjects of myocardial or valvular defects. The tubercle bacillus and its toxin also furnish us with an invariably diseased heart. Regarding the acute rheumatic infection, we are in an uncertain and a transitional stage with respect even to its etiology. In diphtheria we experience nearly 100% of instances of myocardial involvement. The third class of cardiovascular poisons is that of tobacco and alcohol. Histories of two patients are cited illustrative of tobacco poisoning. It is my confident belief that between tobacco and the various forms of food toxemia can be divided the responsibility for the vast amount of arteriosclerosis not attributable to syphilis and old age. From the evidence secured in my own cases, as well as the more definite demonstration in the long sought human autopsy of Favarger, and the laboratory work of v. Otto, it seems fair to conclude that degenerative processes are at work in every tobacco poisoned heart. Alcohol is almost the twin of tobacco in its anesthetic and narcotic effect. We need not discuss its lack of claim to a food value. This lack has been demonstrated beyond all peradventure and accepted as a working principle in all of the foremost laboratories. We know that in small doses and in large, alcohol in continued use soon depresses and then paralyzes the vasomotor nerves. While we do not know that

alcohol produces arteriosclerosis, we know that tobacco does, and that the use of alcohol practically implies the craving for tobacco. Other excesses in food and venery are closely associated with alcoholism and the tobacco habit that tend equally toward sclerotic vessels and myocardial disease. It is impossible, therefore, either to indict alcohol upon the score of directly producing arteriosclerosis or to relieve it completely of either a direct contributory or indirect responsibility for much of the rapidly increasing cardio-vascular disease. It is only fair to exonerate the drug alcohol from contribution to the sclerotic total when used by the physician in therapeutic dosage, if there be any such thing. There is an abundance of reliable evidence to show that the administration of alcohol lowers the vital resistance to bacterial infections by diminishing the power of the human economy to marshal its phagocytes at will and to manufacture the antitoxins requisite to combat the infections which work mainly as toxemias. The only conceivable occasion on which the drug could assist in a grave toxemia would be in such an infection as typhoid fever, occurring in a strong, robust individual of high antitoxic resisting power, in whom there was a too wholesale destruction of bacteria in the tissues with danger that the patient may poison himself to death through the very process that usually works the cure. In the vast majority of typhoid patients, however, this danger is not present. There are few physicians approximating above or below forty years of age who feel that a place remains for alcohol in the pharmacopeia of the well read and conscientious physician, except as an emergency stimulant, and then only in minimal dosage, which does not mean a half ounce or an ounce at intervals of a few hours. The physiologic effect of alcohol is better comprehended by the lay public today than by the average medical man, judging by the tide sweeping over the country. A week ago 700 physicians of Pennsylvania stood for the right of a community to determine by vote whether its citizens should exchange their health for avoidable cardio-vascular disease. The next advance will be the ranging of the national medical body on the side of the disuse of a drug now recognized, in any dosage, to be a cardiovascular nerve and muscle poison, a tissue destroyer, and an economic harm. . . . I have touched in turn upon the several forms of clinical and laboratory evidence for and against the use of alcohol in medicine. I have mentioned three series of experiments confirming Dixon's conclusion that the first action of alcohol is a stimulation of the heart, and for every statement I have made I have given ample clinical and laboratory evidence of investigation known and trusted as such by the entire medical world. A study of the cardiovascular poisons is altogether incomplete without the consideration of an excessive production of the internal secretions, but I have confined myself to the three groups nearest to the citizen and the general practitioner.

DISCUSSION.

DR. H. A. HARE: Sometimes in meetings of American associations I regret that the custom is not carried out which is so constantly adhered to in English medical societies, namely: to follow the habits of our brothers the lawyers, who, at least, in court, attack one another vigorously. Anything that I say tonight, it goes without saying, is not said with any intention to give offense. Dr. Will-

son under the title of a paper on heart disease has really read an attack on alcohol as a drug. If I may be pardoned for saying so, the first mistake in his paper is that of making sweeping statements without the slightest justification for many of them, and some of them in direct controversion to known laws of physiology and pathology. To state, for example, that in the early stage of the influence of alcohol this drug stimulates the circulation by stimulating the vagus is to show an entire ignorance of what every second year student in medicine knows,—that the function of the vagus is inhibitory and that in its action it decreases functional activity of the heart rather than increases it. When the statement is made that alcohol produces arteriosclerosis and arterial spasm, and in the same breath the assertion is made absolutely that alcohol depresses the entire vasomotor apparatus it is difficult to agree, for it is not easy to see how a drug can produce a rise of blood pressure at the same time that it is producing a lowering of blood pressure by depressing the vascular system in general. The reader of the paper does not seem to be familiar with what physiologists and pharmacologists recognize as the true physiological action of alcohol. So far as the circulatory action of alcohol is concerned, in moderate amounts it does not act as a stimulant or as a depressant, but it equalizes the circulation. I believe there is no drug that has physiological power, which, if wrongly used, will not also have the power to do harm. In a recent meeting of the County Medical Society a gentleman who read one of the papers said that alcohol was always contraindicated in tuberculosis. While such a statement is too sweeping to bear weight, published under certain circumstances it might do harm. While the harmfulness of alcohol is well known in miliary tuberculosis, in fibroid phthisis with cough interfering with digestion, the administration of alcohol is the administration of a food which is burnt up in the body, which lends energy to that body, which stimulates digestion, and which if given in the proper form may even help to excrete the material which is in the cavities. What is needed, I take it, is the presentation before this College of a paper which recognizes that when alcohol is abused it does harm; when used rightly, it has a definite, specific, and often a very valuable place in medicine. This is true in diabetes mellitus in which disease, in certain cases, alcohol burnt up in the body possesses a distinct food value. The reader of the paper has gone one step further and made the dogmatic statement that *all*—I think he said *all*—researches show that alcohol decreases the ability of the blood to combat infection. I will be equally dogmatic—They don't do anything of the kind. On the contrary, there are researches that show that alcohol increases the ability of the body to protect itself in certain instances. Some time ago I presented a paper before the Association of American Physicians in which I presented the results of a research to the effect that in typhoid fever and tuberculosis, alcohol in proper doses increases very materially the bacteriolytic action of the blood. The technic by which the studies were made was according to directions given by Dr. Simon Flexner. Upon one point Dr. Willson and I agree,—that the crusade in the profession which has been waged against alcohol has diminished the size of the dose that many physicians now give.

DR. H. C. WOOD: There are several loose expressions in Dr. Willson's paper which I do not think

should be allowed to go uncorrected. He speaks of the "cardiovascular action" of drugs. It is well-known that a drug may have one action upon the heart, and an opposite action upon the blood pressure. Because a drug lowers blood pressure is no proof that it depresses the heart, and vice versa. Pharmacologists always separate these two actions, and study the effect of the drug upon the heart as distinct from its effect upon the blood vessels. If he had made this distinction he would probably not have fallen into the error of comparing alcohol to nicotine in its physiological action. It is hard to imagine two drugs more widely different in physiological effect than alcohol and nicotine.

Dr. Willson in drawing his conclusions from the experiments quoted, fails to make sharp the distinction between the therapeutic, and the toxic dose of alcohol. He speaks of the secondary results of alcohol as if the depressant effect followed when therapeutic quantities were given; whereas, I understand that the depressant results are the effect of toxic doses. Dr. Willson quotes the experiments of Dr. Dixon, but neglects to say that Dixon reached the conclusion that alcohol acted as a food-stuff for the heart. It is a long time since I read Kochmann's paper, which he has also quoted, but the impression made upon my mind at that time was that he regarded alcohol in proper dosage as a stimulant to the heart muscle. I do not think there is any reliable scientific evidence that the secondary effect of small doses is a depressant action upon the heart muscle.

Dr. WILLSON, closing: I am by no means sorry to have my paper combated this evening. I am afforded an opportunity to reply to one or two misleading statements, far more "sweeping" and "irresponsible" than anything to be found in my paper. For instance, Dr. Hare ventured the assertion that I was guilty of ignorance of the first principles of cardiac physiology on the basis of my having made a statement (as claimed by him) that alcohol or any other drug stimulates the heart by stimulating the vagus nerve. What I actually did say, and that which I now repeat, was that alcohol causes a stimulation of the cardiac action through its depressant action upon the vagus nerve. There is no one, I imagine, who is not familiar with the fact that the action of the vagus on the heart is inhibitory. Dr. Hare by his remark would appear to lay himself open to the suspicion of possible ignorance with respect to the action of the sympathetic nerve when the controlling influence of the vagus is set aside. Again, I made no such statement as that alcohol produces arteriosclerosis. Indeed, I made absolutely the opposite statement, namely: that there exists no final evidence that alcohol does produce arteriosclerosis. I did show that the combination of tobacco with alcohol often results in the production of arteriosclerosis. I also took pains to refer to the fact that the combined action of the two drugs gives a different result from that of alcohol alone. Dr. Hare claims that the difference between the action of alcohol and tobacco lies in the fact that tobacco raises the diastolic, and lowers the systolic blood pressure, whereas alcohol lowers both in its secondary action. Dr. Hare is correct in his behalf that the dominant action of alcohol is vasodilator after its first temporary splanchnic-constrictor influence, but he forgets the important fact that vasodilation also characterizes tobacco after its early vasoconstrictor action, and becomes its permanent influence. The evidence obtained from the action of both of these drugs is

to the effect that vasoconstriction and the elevation of blood pressure are not indispensable to the production of arterial disease. I was sorry to hear Dr. Hare revert to the fallacy that alcohol is a food in any true sense of word. In a recent meeting of the County Medical Society, Dr. A. E. Taylor showed in a most conclusive manner that alcohol is never a food in the true sense; and that to call it such shows an entire ignorance of the readily available laboratory findings. Dr. Taylor's statements represent the consensus of intelligent medical opinion on the subject. If in the discussion anyone has seemed to question the evidence I have submitted, such questioning is of the accuracy of the statements of investigators known and trusted by the entire medical world.

SERUM STUDIES IN PREGNANCY.

A Study of the Specificity of Ferments in Pregnancy and the Mechanism of the Abderhalden Reaction. 1. By Means of Local Skin Reactions. 2. By Proteotoxin Production in Vitro.

By DR. JOHN A. KOLMER

AND

DR. PHILIP F. WILLIAMS.

Aside from the probable clinical value of the methods devised by Abderhalden in the serum diagnosis of pregnancy and various pathological conditions, such as malignancy, tuberculosis, lesions of the nervous system and ductless glands, most interest concerns the question of the specificity of the ferments or antibodies concerned and the mechanism of their action. While Abderhalden and many of his pupils have claimed a high degree of specificity for the "protective ferments" and his pregnancy reaction, claiming from the beginning that errors of technic were largely responsible for the failure of others to obtain satisfactory results, the dialysis test as now conducted is not especially difficult and sufficient work has been done by other investigators who have carefully followed Abderhalden's technic to warrant the claim that other factors than those purely technical may be responsible for the divergent and non-specific results obtained.

SUMMARY OF PART I.

1. A *placentin* (No. 1) prepared by concentration of expressed placental juice, preserved with 1% glycerin and 0.5% triceol and injected intracutaneously yielded skin reactions characterized by erythema, infiltration and pain in 87% of pregnant or recently delivered women, and in 66% of women who have borne children, but who were not pregnant at the time these tests were made. This extract also caused 20% of the men tested to react slightly.

2. When diluted 1 to 10 with normal salt solution this extract yielded 80% positive reactions among pregnant or recently delivered women, and 50% positive among women who had borne children.

3. A *placentin* (No. 4) prepared in the same manner as the first extract except that glycerin was not used in its preparation or preservation, yielded 40% positive reactions among pregnant or recently delivered women, and 14% positive reactions among women who had borne children. It is probable that

glycerin itself acts as an irritant, especially in the hypersensitive skin of pregnant women.

4. A *placentin* (No. 2) prepared from the residue resulting from the concentration of expressed placental juice yielded 55% positive reactions among women who were pregnant or recently delivered. This *placentin* produced slightly positive results in 20% of the men tested.

5. A glycerin extract (*placentin* No. 5) upon cutaneous inoculation yielded 50% positive reactions among pregnant and recently delivered women. Of several multiparous and nulliparous women tested, all reacted negatively.

6. Extracts of human male and female kidney (*nephrens*) prepared in the same manner as the *placentins* produced a number of positive reactions among pregnant, puerperal, multiparous and nulliparous women. The most marked reactions were observed with the extract of human female kidney.

SUMMARY OF PART II.

1. Proteotoxins are produced during the Abderhalden pregnancy reaction, which, when injected intracutaneously and intravenously into normal animals, produce local and general changes analogous to anaphylactic reactions.

2. Proteotoxins produced in a mixture of human pregnancy serum and human placenta are toxic for normal guinea pigs.

3. The ninhydrin test with dialysates and intracutaneous and intravenous injections of the sera in the Abderhalden reactions yielded fairly parallel indices of the degree of protein digestion and proteotoxin production.

4. The addition of various tissue substrates other than placenta to human pregnancy serum was followed occasionally by proteotoxin production, as shown by intracutaneous and intravenous tests with the serum, but except when a substrate of human kidney was used, the amount of proteotoxin produced was usually much less than that produced in mixtures of pregnancy serum and human placenta. Similar results were observed with inorganic substances, as kaolin, starch, and quartz.

5. The proteolytic ferments in healthy normal serum may produce small amounts of proteotoxins when tissue substrates are added and occasionally, and to less degree, with inorganic absorbents as kaolin and starch.

6. Complement in itself has no direct relation to the ferments in pregnancy serum. Inactivation of serum probably reduces its digestive power through destruction of normal proteolytic ferment and reactivation of a serum by means of the addition of serum complement increases its digestive power to a slight degree probably by reason of the addition of these normal ferments.

7. In pregnancy serum there are two sets of proteolytic ferments, normal and non-specific and specific ferments. The former may be released through absorption of the antifermment by means of various nonspecific organic and inorganic substances, whereas, the latter are released through absorption of the antifermments by means of the specific protein antigen alone.

8. Our experiments suggest also that the protein matrix in the Abderhalden reaction is not only the protein of the serum, but also to some extent is that of the tissue substratum itself.

While we have naturally hesitated to report upon the local skin reactions in pregnant and puerperal

women until a relatively large number were studied, in view of the contradictory results obtained by others, we feel justified in concluding that the reactions were anaphylactic in nature and due to an anaphylatoxin produced by the action of general ferments upon a protein substrate. We do not believe at present that the reaction in the skin test for pregnancy possesses a practical value in diagnosis, certainly not among women who have borne children. According to experiments described in Part 2, pregnancy serum contains proteolytic ferments which, when rendered active, produce toxic substances capable of inducing local and general reactions analogous to those observed by Vaughan, Friedberger and others and regarded as anaphylactic in nature. Our experiments also suggest that in pregnancy serum there are two sets of proteolytic ferments, one composed of normal non-specific ferments and the second of more or less specific ferments. Our experiments are in accord with those of Jobling and Petersen, Plaut, Peifer, Bronfenbrenner and others to the extent that inorganic substances as kaolin are capable of releasing the normal tryptic activity of a serum probably through the absorption of antifermment followed by the digestion of serum protein. Our work indicates that this action is non-specific, and the result of the release of normal proteolytic ferments, whereas, the activity of the specific ferments in pregnancy serum is best in evidence in the presence of placental tissue.

Harvard Medical School.

RENAL PHYSIOLOGY AND PATHOLOGY.*

PHYSIOLOGY OF KIDNEY SECRETION—DR. E. G. MARTIN.

In hasty review of the anatomy of the kidney it is of importance to note that the afferent vessel of the tangled mass of capillaries, known as the glomerulus, is larger in lumen than the efferent vessel, hence, there is obviously an interference with the escape of fluid through a purely vascular channel. Furthermore, the cells lining the tubules suggest by their appearance and their rich blood supply that their function is secretory. This brings up a question which is better considered after we have reviewed the data of urinary secretion, on which there can be no doubt. The facts of importance are:

(1) Urine is more concentrated than the blood from which it is derived, and also presents striking differences in composition from that of the blood.

(2) The structure of the glomerulus affords a greatly increased "bed" for the flow of the blood through the capillary and, pressure being maintained by a small outlet, provides an ideal arrangement for filtration: i.e. a slow current under pressure with very thin containing walls. It is agreed by nearly all investigators (1) that the glomerulus acts as a filter by letting through water (a large amount of the water in the urine), and (2) that the more complex organic substances with larger molecules are not let through by filtration but are secreted; creatinin for example.

* Lectures at the Harvard Medical School on Dec. 10, 1915.

(3) In general the function of the kidney is to maintain the blood in standard condition, by means of selective qualitative and quantitative elimination. With the exception of the volatile constituents eliminated by the lungs and the few substances eliminated by the bowel and the skin, all of the qualitative and quantitative abnormalities of the blood must be dealt with through the kidneys.

Now the controversy in regard to kidney secretion is over the presence in the urine of substances of small molecular weight—one camp claiming that they filter through with the water in the glomerulus, the other camp believing that these substances are secreted in the tubules. Time prevents a thorough discussion of all the factors in the two theories, but as the secretion theory is most generally accepted we shall consider the evidence in its favor.

If, as Starling and the supporters of mechanical filtration believe, crystalloid (no colloids) substances are filtered through, then urine in the glomerulus should have the same concentration of crystalloids as the blood plasma. But we find in nature two occasions where the urine, as passed, has lower concentration than blood plasma: (1) After copious beer drinking. (2) In cases of salt hunger where, with diminished intake of salt, the urine falls below the blood in salt content. In order to explain the high concentration of some urines, the defenders of the mechanical theory presume marked absorptive function on the part of the tubules, but this assumption is made unlikely by Leschke's work in 1914, in which he demonstrated by microchemical means the presence of sodium chloride and sodium phosphate in the cells of the tubules and their absence in the glomeruli.

But what is the explanation for the secretion of urine? By what mechanism is secretion initiated or increased? We are expecting more and more in physiology to find chemical agencies at the bottom of problems, and giving less attention to purely nervous mechanisms as explanation for bodily changes. No secretory nerves have ever been satisfactorily demonstrated in the kidney: only vasomotor nerves have been shown. It is probable that secretion is activated by hormones. This theory is supported by the fact that a substance may be derived from the posterior lobe of the pituitary which will produce increased kidney action, and further by the recent work of Cow who has shown a diuretic substance in the cells of the jejunum.

The action of diuretics is explained by the hormone theory of secretion on the basis that any substance increasing the volume of the blood (saline diuretics) increases the amount of hormones passing through the kidney, and that certain chemical substances (caffeine-type of diuretics) act as stimulators of hormone action or as simply an irritative chemical substance.

DR. F. G. MALLORY: When the pathologist is called upon to give a basis for the classification of renal disease, he must bear in mind certain elements in making the classification.

1. The Time Element. The line between what we shall call acute or what we shall say is subacute or chronic must be arbitrary. An acute lesion due to staphylococcus aureus may develop in three to four days, whereas it takes months for leprosy to develop its own type of acute lesion. And in subacute

nephritis the toxic form differs so largely from the infectious that the meaning of subacute is thrown into doubt. By the word "chronic," too, the pathologist may mean an old healed condition, or he may mean a recurrent, or perhaps, continuous one. Then it is evident that acute, subacute and chronic are not exact in meaning and are qualified by the condition which they attempt to describe.

2. Etiology is usually mentioned in kidney disease when it is known. Tuberculosis of the kidney is so spoken of, and the scarlet fever kidney is considered an adequate name for a distinct type of lesion.
3. The nature of the lesion, whether toxic or infectious, or a combination, is of considerable importance.
4. Anatomical distribution of lesions is used most consistently in pathological classification.

Commenting on various photo-micrographs which were then shown, Dr. Mallory called attention to the reason for the difference between a tubular nephritis due to corrosive sublimate and the ordinary tubular nephritis. It is due to the fact that in the case of the corrosive sublimate kidney a deposit of lime salts occurs on the necrosed cells in the tubule, and normal cell regeneration is rendered hopeless. Hence the failure of the kidney to recover adequate function. Often what is really acute tubular is called acute interstitial, because there is so much interstitial cell infiltration and proliferation. There is a characteristic tubular nephritis caused by argyrol injections flowing into the kidney structures. The numerous minute deposits of silver in the tubules produce an x-ray picture which looks pathological—and the surgeon removes what he should have left in.

Glomerulo-nephritis may be predominantly capsular or intracapillary—the pure capsular has not yet been seen by the speaker. The final condition in capsular nephritis is the obliteration of the glomerular structure by organization into ever constricting fibrous tissue. Vascular nephritis may show the same lesions as an infectious agent would produce. The glomeruli are shut off from circulation and the endothelial cells undergo fatty degeneration. Amyloid is the only condition that affects merely the connective tissue, and is a purely mechanical lesion due to the pressure of the amyloid as it is produced by the fibroblasts. Interstitial reactions are often seen in ascending infections and, resulting in a diffuse process, are mistaken for the arterio-sclerotic type. Two essential differences between infections and toxic lesions are worth remembering always: an infectious lesion tends to be focal and may be of a different age from other lesions in the same kidney, whereas a toxic lesion tends to be diffuse and of the same age as the lesions elsewhere.

DR. HENRY A. CHRISTIAN: The distinction brought out by Dr. Mallory between infections and toxic lesions fits with the clinical experience that although you may see many signs of renal involvement, the function may remain perfectly adequate on account of a local distribution of lesion. Also this distinction explains the serious character of toxic nephritis which we often underestimate. Hence, we come to a more moderate view that kidney function and other bodily signs and symptoms

form the best basis for estimation of the kidney condition.

The clinical classification of nephritis cannot be as minute as the pathological. Pure types are far from the rule even in pathology and clinically the picture is very frequently a mixed one.

- (a) Acute nephritis can be described best not by any special classification but by mentioning the duration, when possible the cause, and the severity of the harmful agent as is shown clinically. Further than this you cannot go.
- (b) In chronic nephritis the more cases are studied the more futile and inadequate does subdivision into classes become. There are groups of cases which can be separated into:

- (1) Cases associated with oliguria, much edema and slight blood pressure. This group is the "chronic diffuse nephritis without induration" of some authors, or "chronic glomerulo nephritis," or "chronic parenchymatous nephritis."
- (2) Cases associated with polyuria, and no edema except secondary to cardiac decompensation. This group is the chronic diffuse with induration, or chronic interstitial nephritis.

(1) Primary chronic interstitial nephritis has slow progress, with renal lesion uppermost and not so much emphasis on hypertension or cardiac involvement. The diagnosis is based on history rather than clinical study.

(2) Secondary type following attack of Group I nature, where picture changes over to sclerotic changes in the glomeruli and a shrunken kidney.

(3) A third division of chronic interstitial nephritis with induration is made by some, the arterio-sclerotic kidney, where renal involvement is probably secondary to primary process in the arteries.

The general symptoms of chronic nephritis are such that it is important to realize:

- (1) A great many patients arrive at coma and uremia without having any symptoms.
- (2) A second class of patients on learning that they have albuminuria, they consult a physician early while they feel well, and thus get adequate treatment.
- (3) Some patients show cardiac symptoms which, on investigation, prove to have a renal origin.

The symptoms of chronic nephritis are legion, and often confusingly like other entirely different conditions. A few should be mentioned: loss of strength and physical deterioration, failure of concentrative power and forgetfulness. Headaches usually in the morning, with or without high blood-pressure. Great tendency to increased nervous irritability. Tremor. Sleeplessness—ability to fall asleep but constant waking up almost immediately. Paresthesias and hyperesthesias and peripheral neu-

ritis. Some cases with hemi-, mono- or paraplegias. Transient aphasias. Bilateral or unilateral hemianopsia and scotomata—all transient. Albuminuric retinitis. Gastro-intestinal: loss of appetite, coated tongue, foul breath, sense of heaviness in abdomen, intestinal flatus, vomiting, intervals of constipation or diarrhea. Abdominal pain in epigastric or appendix region. Polyuria, frequency, suppression, oliguria. Paroxysmal dyspnea, especially nocturnal dyspnea of asthmatic type. Recurrent winter bronchitis in old people. Dry skin and itching, occasionally skin lesions of various type. Nose bleeds occasionally. Edema.

Most of the above symptoms are not associated with edema, and they may be of very gradual onset.

H. A. CHRISTIAN, M.D.,
A. GREGG, A.B.

Book Reviews.

Studies in Bacillus Welchii. By J. P. SIMONDS. New York: Rockefeller Institute for Medical Research. 1915.

This monograph, issued on September 27, 1915, as No. 5 of the series of the Rockefeller Institute for Medical Research, represents an exhaustive investigation by the author in the laboratory of preventive medicine and hygiene at the Harvard Medical School. It is concerned with a morphologic, cultural and biologic study of Welch's gas bacillus, especially with reference to its classification and its relation to diarrhea. Clinical investigations on this latter aspect by Dr. Karl Ten Broeck and Dr. Frank Garm Norbury, were published in the issue of the JOURNAL for August 19 (Vol. clxxiii, p. 280). The data of Dr. Simonds's researches are recorded in a series of seventeen tables in the text. He concludes that the Welch bacillus designates not a fixed species, but a closely related group of bacteria requiring further classification. As a tentative basis for such classification he suggests the ability of different strains to produce acid and gas or to sporulate in media containing inulin and glycerin. Dr. Simonds personally isolated and studied about 50 of these strains with reference to their cultural and biologic characteristics and their toxin producing and hemolyzing powers, and described a method for determining the number of spores of this organism in the stools of infants. He also made quantitative studies of a large number of cases of normal adults and infants, of adults and infants with diarrhea and of patients with pernicious anemia, and determined the relation of these organisms to fermentative processes, of which they may be regarded as a reasonably accurate index. The monograph closes with an elaborate bibliography of 476 titles on this subject.

Hand-Book of Obstetrics. By KEDARNATH DAS, M.D. With 376 illustrations. India: Butterworth and Company, Ltd. 1914.

Das has presented this subject in a very satisfactory manner. His treatment of the various obstetrical procedures follows in the main closely that of American authors. The illustrations, chiefly from other authors, are well chosen and credit is given in all cases to the original. The last few pages contain "Hints on Obstetric Surgery," which are most valuable not only to the beginner, but to the physician who thinks himself fully capable of undertaking major obstetric work.

War Surgery. By EDMOND DELORME, Médecin Inspecteur Général de L'Armée. Translated by H. DEMÉRIC, Surgeon to In-Patients, French Hospital, London. With illustrations. New York: Paul B. Hoeber. 1915.

The volume upon War Surgery, which was reviewed in the BOSTON MEDICAL AND SURGICAL JOURNAL of June 24, 1915, has appeared translated into very good English by H. De Méric. The size and general characteristics of the book remain as in the French edition. The plates are beginning to show a little the effects of wear and frequent reproductions.

As was said before, the book is an excellent compendium of a department of surgery, which is at present of extreme interest.

A Text-Book of Surgery. For Students and Practitioners. By GEORGE EMERSON BREWER, A.M., M.D., assisted by ADRIAN V. S. LAMBERT, M.D., and by members of the surgical teaching staff of Columbia University. Third and enlarged edition. Thoroughly revised and rewritten. Illustrated with 500 engravings in the text and 23 plates in colors and monochrome. Philadelphia and New York: Lea and Febiger. 1915.

The third edition of Brewer's well known Text-Book of Surgery appears as a well bound, well printed, well illustrated volume of one thousand pages. It is fundamentally changed from the previous editions, not only by its increase in size and by the addition of many new illustrations, but also by the fact that it is no longer the work of Dr. Brewer alone, but of seventeen members of the teaching staff of Columbia University. It may fairly be taken, therefore, as an authorized statement of what the College of Physicians and Surgeons of New York believes to be essential for its students in the subject of surgery.

The transition from a one-man book to a col-

laborative volume has been effectively accomplished. It is indeed remarkable that the book retains to so high a degree the unity which is associated essentially with a volume written by a single author; this happy fact is probably due in considerable measure to the work of Dr. Lambert as editor; at all events, it is a fact that increases considerably the value of the volume as a text-book for students.

Dr. Brewer has revised the chapters dealing with the face, neck, throat, chest, upper alimentary tract, liver, pancreas, kidneys and ureters. All the rest of the book is the work of the collaborators. Justifying the statement of the preface, the book is virtually a new one. In looking through the text, it is pleasant to find that no mention of wire is made in the description of the operation for suture of the patella; that the "operative treatment of fractures should not be employed unless a satisfactory reduction cannot be obtained and maintained by the closed method"; that the Whitman method of treatment of unimpacted fracture of the neck of the femur is advocated; that the summary of the operative indication in appendicitis is rational, but not rabid; and that the descriptions of the various methods of operative attack in general contain all essentials, but are exceptionally brief, concise and clear.

The lumière colored photographs deserve a special word of commendation, since they are exceptionally good. It is obvious that there are very great difficulties associated with the problem of maintaining a limit of one thousand pages for a complete surgical text-book. In spite of this fact, Dr. Brewer has succeeded in a very high degree in accomplishing his purpose of "presenting clearly every phase of Modern Surgery." The book is strongly recommended to students and practitioners.

Twilight Sleep. By ALFRED M. HELLMAN, B.A., M.D., F.A.C.S. New York: Paul B. Hoeber. 1915.

Hellman is a firm believer in twilight sleep, count of the use of twilight sleep abroad and in this country. He has summarized the more important articles on the subject, but has not included in the bibliography by any means all of the articles which have appeared, although he states the bibliography is complete to June, 1915.

Hellman is a firm believer in twilight sleep for he says in the final sentence of his book that "until some better and more easily manipulated treatment is devised the technic outlined will be the method of choice for alleviating the pains of childbirth."

There are many more typographical errors than should occur in such a small book, and one would have difficulty in finding in the *Index Medicus* the names of some of the authors as Hellman has them.

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DOCTOR STRONG'S WORK IN SOUTH AMERICA.

In the brilliancy of the work accomplished by Dr. Richard P. Strong last summer in the suppression of the epidemic of typhus fever in Serbia, and of his work four years ago, at the time of the epidemic of pneumonic plague in Manchuria, the medical profession, as well as the public, is likely to overlook the equal brilliancy of his work and that of his associates in South America in 1913. In that year Dr. Strong went as leader of the first expedition to South America of the Harvard School of Tropical Medicine. Associated with him in the personnel of this expedition were Dr. Ernest E. Tyzzer, assistant professor of pathology in the Harvard Medical School; Mr. Charles T. Brues, assistant professor of economic entomology in Harvard University; Dr. A. W. Sellards, assistant in tropical medicine at the Harvard Medical School; and Dr. J. C. Bastiaburu, director of the

Municipal Laboratory of Hygiene, at Lima, Peru. The report of this expedition has recently been published in a remarkable volume* issued from the Harvard University Press and abundantly illustrated with original figures.

In the introductory chapter the purpose of the expedition is stated to have been the investigation of certain forms of tropical disease in South America, with the idea of collecting material to be used for the instruction of students in the various courses of the school. The itinerary of the expedition is outlined, which was first to Kingston, Jamaica, thence to Colon and Panama, and from the Canal Zone down the west coast of South America to Buenaventura, Colombia, and Guayaquil, Ecuador. Finally the expedition went to Lima, Peru, whence it returned to Boston. In this chapter also are stated the principal disease problems whose investigation was to be undertaken.

The succeeding chapters deal respectively with material obtained and the discoveries made with regard to the following diseases: oroya fever, verruga Peruviana, uta, and yellow fever. There are also valuable accounts of the entomological investigations made by the expedition at Mutucana, Surco and San Bartolomé, in Peru, on various organisms supposed to be associated with the transmission of verruga Peruviana; of sanitary conditions and of the principal diseases prevailing at Guayaquil; and of the linguatula obtained from crocodiles in the rivers near this city. There is also an appendix of five minor entomological communications.

Particular emphasis and three-fourths of the space in the report are given to the studies of oroya fever and verruga Peruviana. The importance of these hitherto little known tropical diseases is pointed out, and their distribution, seasonal prevalence, clinical features, pathology and histopathology are considered in detail. There has been confusion in the past between these two diseases, whose distinctive etiology had not been determined. After studying the conditions of their existence in Peru, it was concluded by the expedition that the two are distinct diseases. Verruga Peruviana is shown by Dr. Strong and his associates, by experimental cultivation and inoculation in animals, to be due to a virus transmissible to animals by direct inoculation and producing in them definite lesions. Oroya fever, on the other hand, is shown to be

* Report of First Expedition to South America, 1913. Cambridge: Harvard University Press, 1915.

due to an organism, parasitic in the red blood corpuscles and the endothelial cells, and sufficiently distinct from the other hematozoa to be classed in a new genus. *Verruga Peruviana* is chiefly characterized by a skin eruption and is very rarely fatal; whereas *oroya* fever is characterized by pyrexia and by a rapid and pernicious anemia, resulting in extreme prostration and frequently in death. The clear clinical differentiation of these two diseases and the scientific experimental determination of their etiology constitute the principal contribution of this expedition to the science of tropical medicine. It is significantly noted in the introduction that the results obtained and the discoveries made by the expedition serve to emphasize the importance of sending to the tropics other expeditions for the investigation of other specific problems. In this instance the knowledge obtained has been secured at comparatively small cost.

A word of repeated commendation should be added for the original illustrations presented in the form of forty-eight full-page plates, many containing two or more figures and a number being colored. It needs hardly to be added that the credit for the successful carrying out of this expedition redounds not only to Dr. Strong and his associates, but to the Harvard Medical School and to the American medical profession.

THE PROFESSION OF MEDICINE.

THE Harvard Medical Alumni Association has recently published a book called "The Profession of Medicine," compiled and edited by Dr. Arthur B. Emmons, 2nd, director of the Appointment Bureau of the Harvard Medical School. The book is a study of the doings and opinions of ten classes of the Harvard Medical School, 1901 to 1910, and is intended to be a helpful guide to the prospective practitioner and to those interested in the education and preparation of medical students for their several callings in medicine. In making this inquiry it was decided to send a circular letter to the members of ten classes, approximately nine hundred men. These physicians had been out of the Medical School from three to thirteen years. Some, therefore, were just beginning to practice after hospital work, while others were well established. No name or identifying address was asked. The questions were ten in number. They

asked for the location and the population of the town or city chosen, amount of hospital work taken after graduation, whether in general practice, or specialty, laboratory, teaching, public health or special work, amount of money made in each successive year since leaving the School, and the per cent of work now paid for in full. They also asked for an opinion on the need of the community for general practitioners, specialists, surgeons, and public health officers, whether a premedical preparation should predominate in studies of general culture or natural science, what was lacking in the school course to fit the recipient for his particular work, and whether the practice of medicine had proved satisfactory or unsatisfactory.

Over one-third of the men answered, and their frank expressions of opinion are most interesting and illuminating. A feeling of great satisfaction and love for the career of medicine is expressed by many men in the profession, both because of the amount of good they are enabled to do in the world, and because of the intense interest of the work itself. Very few regret their choice of life work, although there are many complaints against the overcrowded condition of the profession, the competition with "quacks" and the small monetary reward to be gained from its pursuit. The replies to the question as to the branch of medicine practiced is a striking comment on the medicine of today. Only 36 men were in general practice solely, 134 were in general practice with a specialty, 142 in specialties only. Of the specialists, 90 practiced surgery, 28 medicine, 23 obstetrics, 23 laboratory work, 19 eye, ear, nose and throat and 36 teaching.

Many physicians consider the practice of medicine unsatisfactory from the standpoint of money-making. The expense of training, that is, the amount of time and living expenses, far overbalance the actual amount received from patients in the early years of practice. Some men rather cynically express themselves to the effect that the only satisfactory way of entering upon this career is to regard it as a philanthropy. The few men who appear to have entered it solely to gain the reward of gold regret their choice of the career. The general opinion is that the consciousness of satisfaction comes not from the earnings in money, but from the amount of good accomplished for which the medical profession gives the opportunity. The

average earnings of the class of 1901 range from \$866 for the first year to \$4680 for the thirteenth year; that of the class of 1910, \$1237 for the first year and \$1835 for the fourth year.

The hospital training received after graduating from medical school is regarded by many as the most valuable part of their entire training in medicine. Nearly every man who did not take a hospital internship either specifically mentions his deep regret or he emphasizes the need of those especial things which an internship furnishes, such as actual experience in handling patients, surgical technique, details of treatment, and sufficient clinical instruction. On the other hand, certain men point out the fact that their lack in the medical school along lines of general therapeutics was made up afterward in the hospital. As for pre-medical education, 120 graduates favored sciences, 110 the arts, and 70 both or equally.

In general, summarizing from the report, the following facts may be stated. Two hundred and twenty-five definitely state that the practice of medicine has proved satisfactory to them, sixteen that it has not. The life, especially in rural districts and small towns, is often very strenuous and seldom is it lucrative. This is usually compensated for by the devotion of patients to their doctor, much less felt in urban districts. Unreasonableness and ignorance on the part of patients are perhaps the most trying parts of practice and require a large measure of benevolent patience. To be a good general practitioner takes more brains, judgment and energy than to succeed in a specialty. Specialization requires more preparation and brings bigger and easier returns. It is not surprising, therefore, to find that but thirty-six men were doing general practice only, while one hundred and thirty-four were doing general practice with a specialty, which probably would lead them in a few years to limit their work to the specialty. One hundred and forty-two already were doing only special work. For this reason it can scarcely longer be said that the majority of the graduates of the Harvard Medical School must go into general practice, or that the chief aim of the Harvard Medical School must be to train the general practitioner. Rather must its aim be to train broadly men of versatile capacity to meet the changing requirements of the medical profession, whether these requirements are those of the general practice of medicine in a rural district or those of one of a group of spe-

cially trained experts in a larger community, or to teach, or to enter public health work, or to develop new fields of medical usefulness. The question of location is a vital one in the doctor's career. Most of the dissatisfaction with the practice of medicine is traceable, directly or indirectly, to overcrowding. There seems to be no method at present of intelligently distributing physicians according to the need. It has remained a question largely of individual fancy resulting in the crowding to large cities. Several men speak feelingly on the question of proper instruction in medical ethics and on this subject the public also often wonders. Specific mention is made of various evils, such as fee-splitting, lodge practice, quacks, and patent medicines. But the greatest danger of all to the individual and to the profession in general is commercialism.

RÉSUMÉ OF COMMUNICABLE DISEASE IN MASSACHUSETTS FOR NOVEMBER, 1915.

THE number of cases of communicable diseases reported to the Massachusetts Health Department during November varied slightly from the number reported during October. The total number of cases this month was 4574; last month 4547. The following diseases have decreased in number: anterior poliomyelitis, cerebrospinal meningitis, diphtheria, and typhoid fever. There was an increase in the number of cases of chicken pox, measles, scarlet fever and whooping cough.

The amount of tuberculosis reported is of interest. During November, 1914, 510 cases of all forms of this disease were notified, while in November, 1915, 601 cases were notified. This increase in cases in all probability is due to better reporting as a result of the operation of the tuberculosis dispensaries.

In comparison with the same month last year the total number of cases was larger. This increase was due largely to the variation in the number of cases of measles and the marked increase in the number of cases of whooping cough.

Aside from tuberculosis (which always causes the greatest number of deaths), the important causes of death were diphtheria, typhoid, whooping cough. Of these diseases, diphtheria with

its 65 deaths is of vital interest. Notwithstanding the fact that we know the cause, modes of transmission, and have an efficient cure, the great toll of deaths continues from this disease. The other two diseases of prime importance are whooping cough and typhoid fever. An analysis of the returns shows that whooping cough caused 23 deaths during November. When we reflect that there is almost three times as much whooping cough in this state this year as there was last, it requires little calculation to anticipate a large number of unnecessary deaths this year. While there were only five deaths during the month from measles this does not tell the whole story. The after-effects of this disease are very much more harmful than the disease itself. This applies also to scarlet fever.

While the total number of cases of diphtheria decreased, the disease is still prevalent in the following places: Springfield, Worcester, Southbridge, Marlborough, Cambridge, Saugus, Brockton, Billerica, Leominster, Fitchburg, Maynard and Lowell. In some of these places there has been no increase in the number of cases over last month. In fact, in some of them there has been a decrease. This is true of Fitchburg.

In typhoid fever the only important focus has been at Ashburnham. Here there was a sharp epidemic.

Measles shows a marked tendency to increase in the following places: Salem, Chelsea, and Taunton, while in Springfield it is holding its own. It is also present in considerable number in Holyoke, Lawrence, Saugus, Lynn and Brookline.

Whooping cough seems to be scattered over the whole state. The most important points of prevalence are: Springfield, Newton, Lawrence, Winthrop, Framingham, Northampton and Provincetown. In the last named place the disease has been present for a number of months and shows a tendency to increase.

Scarlet fever was present in more than the usual amount in Lynn, Brookline, Leominster, Fitchburg and North Attleborough.

During the month of November, the only epidemic of importance occurred at Ashburnham. Twenty-one cases of typhoid fever were reported between November 7th, and November 23rd. A careful investigation is being conducted by both the state district health officer and the engineering division. This outbreak presents some puzzling features, and at the present writing, the source of infection has not been determined.

A detailed report of this epidemic will be published later.

During the month of November, three cases of anthrax were notified. Two of these were in Woburn and one in the city of Boston. Somerville reported one death during the month from actinomycosis.

MASSACHUSETTS GENERAL HOSPITAL CLINICAL SOCIETY.

THERE has recently been organized in Boston a new medical society, the Massachusetts General Hospital Clinical Society, the notice of whose meeting appears this week for the first time on the last page of the JOURNAL, and will appear there regularly hereafter. The purposes of this organization, whose membership is made up of the house staff of the hospital, are to present single interesting cases, groups of cases, historical sketches, pathologic specimens, x-ray studies, and thus to bring together the various services, interest them in one another's work, and encourage reciprocal assistance. The lack of correlation of studies and of scientific stimulus has long been felt among house officers, and it is hoped the new society may meet this want, and that the labor necessitated by it may be a distinct source of profit to individuals.

The meetings of the Massachusetts General Hospital Clinical Society are to be held fortnightly at 7.15 p.m., generally in the out-patient amphitheatre, and the visiting staff, the administration, physicians, surgeons, and students are cordially invited to attend. Meetings have already been held on Nov. 24, Dec. 1, and Dec. 13, with interesting and profitable programs. The attention of the profession is particularly called to this new and promising organization, to which the JOURNAL takes sincere pleasure in extending its cordial good wishes for success.

INCREASED MORTALITY IN NEW YORK DUE TO HEART AND KIDNEY DISEASES.—According to the weekly report prepared by the New York Department of Health, there were, during the past week 182 more deaths in the city than during the corresponding week of last year. The heavier mortality from diseases of the heart and kidneys was responsible for most of the above increase, 399 deaths being attributed to these diseases during the past week,—an increase of 106 deaths over the corresponding week of last year. The Department of Health has repeatedly called attention to the increasing mortality from these diseases and has repeatedly urged, as the best safeguard against them, a yearly medical exami-

nation by the family physician. The onset of these diseases is usually so insidious that before the symptoms become sufficiently pronounced to compel one to consult a physician, the disease has often advanced too far to permit of its being cured or even held in check. During the past week there were 1520 deaths, with a rate of 13.66, as compared with 1338 deaths with a rate of 12.15 for the corresponding week of last year. A difference of 1.16 in the weekly rate is equivalent to an increase of 128 in the number of deaths. In other words, while there were actually 182 more deaths, 54 of these are to be accounted for by the increase in the population. The death rate for the first 50 weeks of 1915 is 13.52, as compared with 13.66 for the first 50 weeks of 1914.

THE HOSPITAL STEAMSHIP "STRATHCONA."—The Wilfred T. Grenfell Association in reporting the work of its hospital steamship *Strathcona* from June 27, 1915, to September 27, 1915, states that a total of 958 out-patients were treated, and 27 in-patients. Of the out-patients, 115 had diseases of alimentation and 100 beri-beri, caused by the lack of variety in the diet of the poor fishing people to whom the hospital ministers. During the summer the boat had steamed 2250 miles; towed home (St. Anthony, Northern Newfoundland) five barge loads of wood; twice went to Lewisporte, (Newfoundland) to meet the train; visited all hospital stations: Indian Harbor, Harrington, Battle Harbor, Spotted Islands, Forteau, Paul's River, (Labrador), St. Anthony, Pilleys Island, (Northern Newfoundland), and went to Twillingate to start another hospital.

AMERICAN ASSOCIATION FOR CLINICAL RESEARCH.—The annual meeting of the American Association for Clinical Research was held recently in Philadelphia. The following officers were elected for the ensuing year. President, Dr. Coleman of New York City, vice presidents, Dr. William B. Snow of New York City and Dr. Leon T. Ashcraft of Philadelphia, permanent secretary, Dr. James Kraus of Boston.

UNIVERSITY OF ILLINOIS.—It is announced that a new building is to be erected in Chicago for the clinical courses of the University of Illinois Medical School. Only one wing will be built at present at an initial cost of about \$100,000. The remainder of the building is to be added later as the demand for room increases.

EUROPEAN WAR NOTES.

MASSACHUSETTS RED CROSS SURGEONS IN ENGLAND.—In a recent issue of the London *Lancet* has appeared the following editorial account of a farewell luncheon given in London on October 13, by Sir William Osler to Dr. Howard Beal on the occasion of the completion of the latter's service as chief surgeon of the American Women's War Hospital at Paignton, Devonshire.

"Dr. Beal came over with the first American Red Cross units in September, 1914. The two units, then allotted to England, consisted each of three surgeons and twelve nurses; one unit was sent at once to Paignton; the other was for a time attached to Haslar Naval Hospital, but afterwards it also went to Paignton, and the hospital there then had a staff of six surgeons and twenty-four nurses, with an equal number of British and Australian nurses. Later on Dr. Crumley, of the Mayo Clinic, was attached as pathologist and bacteriologist. Sir William Osler proposed a composite toast to the American women in England who had achieved a fine piece of organizing work at Paignton, to the American Red Cross which had supplied the staff, and to Dr. Beal. Sir Alfred Keogh bore testimony to the admirable work done by the American Red Cross at Paignton, and by the Harvard and other units in France. In the name of the R.A.M.C., he thanked Dr. Beal and the American women in England, who, headed by Mrs. Harcourt and Lady Randolph Churchill, had made the enterprise possible. Dr. Beal gave some particulars of the hospital, stating that it now possessed 250 beds, with 20 others in an isolation block. During the year which had just been completed it had treated over 1900 patients with so much good fortune that it had had to record only five deaths."

Dr. D. Pearce Penhallow of Boston, the successor of Dr. Beal as chief surgeon of the hospital, has recently sent to the *JOURNAL* an analyzed report of the first one thousand of these cases treated there, representing the discharges from October 1, 1914, to March 14, 1915.

"Of this number 785 cases were surgical, 520 traumatic, and 265 non-traumatic. Of the traumatisms 445 were wounds, the remainder mostly contusions and sprains. 254 wounds were infected, but only 2 with tetanus, both of which recovered, and none with the gas bacillus. Sixty wounds contained foreign bodies, requiring 51 operations for their removal. There were 115 fractures—7 of the skull, 3 of the jaw, 7 of the clavicle, scapula, or ribs, and 98 of the extremities. Of other complications, hemothorax occurred 12 times and aneurysm once. A total of 179 operations were performed, only 19 amputations among them, of which all but 4 preceded admission. Of non-traumatic surgical conditions, frost-bite headed the list with 144, and defective teeth came second with 21. Amongst 301 medical conditions, only 60 were of infections, endocarditis 19, dysentery 17, rheumatic fever 11. Of non-infectious conditions, bronchitis and myalgia were much the most frequent. Turning to the results of treatment, cure was recorded in 63 per cent. of the surgical and 60 per cent. of the medical cases, improvement in 35 per cent. and 32 per cent., respectively. Only 3 patients died. The average time off duty before admission was 11.4 days, and of stay in the hospital 22.8 days. Only 35

were invalidated out of service, and 54 transferred to other hospitals. The report deserves careful scrutiny, and is to be followed shortly by one on the second 1000."

WAR RELIEF FUNDS.—On Dec. 18 the totals of the principal New England relief funds for the European War reached the following amounts:

Red Cross Fund	\$142,298.92
Belgian Fund	73,023.63
Serbian Fund	58,042.07
Allied Fund	43,975.80
British Fund	41,020.72
French Fund	30,413.76
Armenian Fund	25,309.65
Surgical Dressings Fund	15,211.00
Italian Fund	13,549.69
LaFayette Fund	13,395.99
Polish Fund	9,611.12

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH-RATE IN BOSTON.—During the week ending December 18 there were 255 deaths reported, with a rate of 18.27 per 1000 population as compared with 264 and a rate of 19.12 for the corresponding week of last year.

A notable difference was a total of 14 deaths from pulmonary tuberculosis, against 24 last year.

There were 43 deaths under one year, as compared with 59 last year, and 83 deaths over 60 years of age, against 67 last year.

Total deaths reported in 50 weeks from January 2 to December 18 were 11,368, against 11,344 for the corresponding period in 1914.

Deaths under one year reported in the same period were 1927, against 1919 for the corresponding period in 1914.

During the week the number of cases of principal reportable diseases were: Diphtheria, 59; scarlet fever, 48; measles, 53; typhoid fever, 0; whooping cough, 42; tuberculosis, 52.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever 9; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 4; tuberculosis, 14; whooping cough, 5.

Included in the above were the following deaths of non-residents: diphtheria 2, tuberculosis, 2.

Only three cases of typhoid fever have been reported during the past three weeks in this city, which is the lowest morbidity record on this disease since typhoid fever was made a reportable disease, namely, 1881.

HOSPITAL BEQUESTS.—The will of the late Mrs. John E. Hudson which was filed in the Suffolk Probate Court on December 10, contains bequests of \$5000 each to the Boston Home for Incurables and the Boston Nursery for Blind Babies, and creates the Industrial School for Crippled and Deformed Children as residuary legatee.

The will of the late Edward E. Taylor, filed on December 15 in the Suffolk Probate Office,

contains a bequest of \$10,000 to the Laconia (N. H.) Hospital; a bequest of \$2000 to the Florence Crittenden Home; and a bequest of \$1000 to the Boston Floating Hospital.

A SECOND CASE OF LEPROSY.—A second case of leprosy discovered in Boston recently proved to be an old sailor, about seventy-two years of age. He has followed the sea for many years and believes that his present illness was contracted while visiting Asiatic ports. Upon application to the Massachusetts General Hospital for treatment the nature of his disease was discovered. He was sent to the Southampton Street detention hospital and will later be taken to Penikese Island.

FREE WASSERMANN TESTS.—Beginning with January, 1916, the Bacteriological Laboratory of the Boston Health Department will be prepared to examine blood specimens by the Wassermann test for syphilis. Tests will be made each Tuesday, Wednesday, Thursday and Friday. Patients for whom the test is requested should be sent to the Laboratory, Room 1101, City Hall Annex, where the blood specimens will be taken. History blanks will be mailed to any Boston physician on request, and each patient appearing at the laboratory must present one of these, carefully filled out and signed by his attending physician. The Laboratory will be prepared to receive these patients and to collect the blood specimens on Mondays, Tuesdays, Wednesdays and Thursdays, from 2 to 4 p.m. only. Specimens will not be collected at any other time, nor will they be collected from patients coming without a carefully prepared history card. The data required are as follows:

* Patient's name; age; sex; patient's address; civil condition: married, single, widowed; provisional diagnosis; syphilis acquired or congenital; active lesions; stage, (primary, secondary, tertiary); antisyphilitic treatment, (number doses salvarsan, number doses neo salvarsan, mercury pills, number months, number mercury injections); present treatment; physician's name; physician's address.

This test, like all laboratory tests furnished by the department, is without cost to physician or patient.

GIFT TO BOSTON DISPENSARY.—At a recent monthly meeting of the board of managers of the Boston Dispensary, a gift of \$5000 was announced from Mr. Shepard Brooks. During the month of November a total of 10,472 treatments was given at the Dispensary of which 9593 were at the morning clinics and 879 at the evening clinics.

MASSACHUSETTS SURGICAL AND GYNECOLOGICAL SOCIETY.—The annual meeting and dinner of the Massachusetts Surgical and Gynecological Society were held in Boston on December 8. At the afternoon session under the chairmanship of the

*Initials in full will be accepted instead of name and address.

retiring president, Dr. Charles T. Howard of Boston, the following papers were presented:

Dr. Dewitt G. Wilcox of Boston, "The Treatment of Pelvic Adhesions"; Dr. Ralph A. Stewart of New York, "A Plea for Better Records in Fractures"; Dr. G. Forrest Martin of Lowell, "Some Phases of Surgery of the Lungs," and Dr. Walter G. Crump of New York, "Surgical Aspects of the Cancer Problem."

At the close of the session the following officers were elected for the ensuing year: president, Dr. H. O. Spalding of Westboro; vice president, Dr. Ralph C. Wiggins of Cambridge; secretary, Dr. Harry J. Lee of Boston and treasurer, Dr. C. Y. Wentworth of Newton Highlands.

Obituary.

EDWARD LIVINGSTON TRUDEAU, M.D.

In the death of Dr. Edward Livingston Trudeau, not only the medical profession, but the world at large, has suffered a loss which it is quite impossible to measure or express in words.

Edward Livingston Trudeau was born in New York City in 1848. He died November 15, 1915, in his 68th year. His parents were both of French descent. As a boy, he grew up on his father's plantation near New Orleans. At the age of eighteen, he returned to the city of his birth intending to enter the United States Navy. His elder brother, however, at that time was stricken with tuberculosis and died within six months. Up to the hour of his death, he was attended by his younger brother, who thus for the first time came in contact with the disease which in later years he fought so long and well.

He entered Columbia University, and later the College of Physicians and Surgeons in New York, from which he graduated in 1871. He entered practice in the city and in the same year married Charlotte Beare. Of their four children, three died: one in infancy at Paul Smith's, another daughter, Charlotte, in 1893, and later Dr. Edward L. Trudeau, Jr. The death of the latter was a terrible blow to his father, who had hoped that the son who bore his name would also carry on his work.

Dr. Trudeau remained in practice in New York City only two years when he began to show symptoms of tuberculosis. His condition was considered a most serious one, and in the minds of his most intimate advisers, he was thought to have but a small chance of living more than six months or a year. Dr. Trudeau, himself, however, felt differently. He determined to go to the Adirondacks which he loved, and in this same year, with his wife, he took up his abode at Paul Smith's, then forty miles from the nearest railway. As soon as he arrived, he be-

gan to improve. He loved the mountains, and had an unbounded faith in the tonic properties of Adirondack air.

At Paul Smith's, he met Dr. Alfred L. Loomis, of New York. The elder physician had long held what were considered most radical ideas concerning the treatment of consumption and had been anxious to give his theories a fair trial. In Dr. Trudeau's case, he met his first opportunity to do this. During the winter of 1873 at Saranac Lake, Dr. Trudeau's health and vigor continued to improve so that in the next year he decided to venture abroad again.

He went to St. Paul, Minnesota, and after a year of busy practice, mostly indoors, again relapsed. He felt that which has been remarked in thousands of other patients who have come to the Adirondacks and gone away again—"the call of Saranac." Since that day, Saranac Lake and Paul Smith's have been between them the home of Dr. E. L. Trudeau.

As before, he was very ill, and hardly fit to take the long journey in a sleigh from Ausable Fork through the wilderness to Paul Smith's. Once again, however, the magic of Adirondack air performed the great miracle and Dr. Trudeau again recovered and his strength increased. He developed considerable practice both among the local residents and the summer visitors, and in 1877 he definitely took up his abode in Saranac Lake. Many of the patients whom Dr. Loomis had sent him, as well as those who had come to him voluntarily, went with him to Saranac Lake.

In 1882, the world was stirred by the discovery of the tubercle bacillus by Robert Koch of Berlin. This was Dr. Trudeau's inspiration to scientific research. Despite his enormous handicaps, he at once entered this new field of work. In 1884, with the advice and encouragement of Dr. Loomis, the first cottage of that which was in due time to become a beautiful sanitarium village,—Trudeau, N. Y., one and a half miles from Saranac Lake,—was erected on the side of Mount Pisgah. This little cottage represented the beginning of a great movement, the influence of which has been felt all over the United States and Canada. There are doubtless over four hundred sanatoria for the treatment of tuberculosis in this country alone that owe their inception directly or indirectly to the influence of Dr. Trudeau and the Adirondack Cottage Sanitarium.

Today, the Adirondack Cottage Sanitarium is a million dollar institution; yet each year it is run at a loss which has to be made up by the generosity of such individuals as have means and are willing to share them for a great cause. The arduous burden of making up this deficit has been borne by Dr. Trudeau despite his physical handicaps. He, himself, has refused to draw any salary as president of the institution.

Today, the Sanitarium at Saranac Lake is recognized as one of the greatest health centers on the American continent for the treatment and cure of tuberculosis. This and the Saranac Lake Laboratory are standing monuments to the greatness of this man.

Among the honors that have been conferred upon him are Master of Science, Columbia University, 1889; Honorary Fellow of the Phipps Institute, 1903; LL.D., McGill University, 1904; and LL.D., University of Pennsylvania, 1913.

In 1910, Dr. Trudeau was president of the Eighth Congress of American Physicians and Surgeons, held at Washington, D.C. He addressed the Congress on "The Value of Optimism in Medicine." The following paragraphs from this address in Dr. Trudeau's own words express better than anything else his own philosophy in life:

"Optimism is the one thing that is within the reach of all of us, no matter how meagre our intellectual equipment, how unpromising our outlook at the start, or how obscure and limited our careers may be.

"It was about my only asset when I built my first little sanitarium on a remote hillside in an uninhabited and inaccessible region. Viewed from the pessimist's standpoint, that little cottage as an instrument of any importance in the warfare against tuberculosis must have appeared as a most absurd and monumental folly.

"Optimism made me indifferent to neglect and opposition and blind to obstacles of all kinds during the long years of struggle before the value of sanitarium treatment became generally recognized. It enabled me to undertake the culture of the tubercle bacillus and delve in the complex problems of infection and artificial immunization, though I had no knowledge whatever of bacteriology, no laboratory, no apparatus or books.

"Let us not, therefore, quench the faith nor turn from the vision which, whether we own it or not, we carry as Stevenson's lantern bearers their lanterns, hidden from the outer world, and thus inspired, many will reach the goal; and if for the most of us our achievements inevitably must fall short of our ideals, if when age and infirmity overtake us 'we come not within sight of the castle of our dreams,' nevertheless all will be well with us; for, as Stevenson rightly tells us, 'to travel hopefully is better than to arrive and the true success is in labor.'"

To any one who knew him well, Dr. Trudeau presented a varying front. One of the greatest optimists that ever lived, he could now and then be one of the greatest pessimists. His temperament was distinctly French. The marvelous thing is that through all the sufferings of his latter years he could keep up his courage and cheerfulness as he did.

During his latter years, when for the greater part of the time he was confined closely to his

bed, he continued to be a constant source of inspiration to physicians who were fortunate enough to come into contact with him, to friends who had their own burdens to bear, and to patients from all over the world. He has preached the gospel of courage and faith in the eternal goodness of things. He was a friend to all the world, and all the world was a friend to him. No man ever laid down his burden more deserving of rest and the respect of his fellow men.

Miscellany.

ADVANCE IN COST OF DRUGS.

DURING the past month the increase in the price of drugs, which has been noted since the outbreak of the European War, continued its steady progress with regard to all important drugs, with the exception of quinine. Report from New York on November 30 makes the following statements on this subject:

"Most prominent among the price fluctuations in the list of fine medicinal drugs has been a fresh upward movement amounting to \$1.00 a pound in gum, powdered and granular opium. This advance was based on the virtual cessation of all shipments from Macedonia and Turkey, as well as shrinkage in local supplies and continued demand from abroad for all opiates. According to statistics just released by the Government, opium stocks in the United States are shrinking at the rate of close to \$90,000 worth a month. The stock of opium containing 90% of morphia and over in our bonded warehouses on October 1, 1915, amounted to but 47,189 pounds of the value of \$205,680, comparing with 67,687 pounds of the value of \$293,658 on September 1, 1915, 92,997 pounds of the value of \$394,088 on July 1, 1915. There has been no reflection of the additional advance in prices for opium thus far in morphine or codeine, but a much stronger undertone pervades the market, as foreign demand is reaching much larger proportions. Not only is the demand from Europe steadily on the increase, but a demand from Japan has sprung up here of late.

"Bromide preparations have continued unusually scarce in the local market, prices having been maintained at \$5 to \$6 a pound in second hands. All tests of acetic acid from 28% to 99 1/2% glacial have scored sharp advances following an uplift of 50 cents per hundredweight in acetate of lime to a basis of \$5 to \$5.05 per 100 pounds.

"Russian cantharides have scored another sharp advance to \$5 a pound for powdered, while Chinese powdered cantharides have advanced 20 cents and are now being held at \$1.70 a pound, owing to a virtual exhaustion of the

supplies of whole. U.S.P. lac sulphur has risen to 20½ and 21 cents a pound on declaration of an embargo on shipments from Great Britain. South American balsam copaiba is 5 cents higher, at 45 cents per pound; balsam peru has advanced to \$4.75 and \$5; American saffron flowers to 75 cents a pound; Valencia saffron to \$11.25 and \$11.50; true liquid stryax to 45 cents a pound; oil of cloves to \$1.37½, and \$1.42½; bergamot oil to \$3.50; oil of cassia to \$1; juniper berries oil to \$3 and \$4; natural mustard oil to \$14; and artificial to \$9.50; oil of nutmegs to 90 and 95 cents; domestic peppermint oil in bottles to \$2.60 and \$2.65, and oil of patchouli to \$7.50 and \$7.75 a pound.

"So far as carbolic acid is concerned, it is notable that offers during the past three days have been made more freely around \$1.75 a pound basis in drums, and \$1.90 basis a pound in pound bottles. Production of benzol and carbolic acid have both been brought up to their maximum in the United States, according to leading representatives of the manufacturers. The high level for spot goods is maintained owing to the fact that the explosive manufactures are still taking the bulk of the output.

"Advances in the general list of the Far East drug and chemical products have also been quite general, the most important uplifts having occurred in such natural dye products as gambier, catechu, indigo, nutgalls and turmeric. Spot Aleppy turmeric has practically disappeared from the market. Tapioca, all the grades of cardamom seeds, nux vomica, gum assafoetida, mastic, arabic, copal euphorbium, belladonna root, citronella and sandalwood oils, buchu, canabis-indica, coca, senna and thyme leaves and Levant wormseed have all shown a stiffening tendency of late. The sales of cassias alone in this market have amounted to more than 10,000 pounds, and the same reason for the elevation of prices holds good: to wit, poor shipping facilities and neglect of crops in the primary markets.

"A sensational advance in prices asked for quinine salts was recorded the latter part of October. An advance in the asking price of second hands to \$2.50 and \$2.75 an ounce was the highest figure ever established for quinine since the Civil War. The effect of the sharp advance in prices asked for outside lots was to choke off the demand from Europe, as well as to restrict the inquiries from domestic consumers to such quantities as they would require for their own immediate needs.

"In early November, the British Government, taking cognizance of the sharp reduction in the stocks in London and all other centres, placed quinine on its list of prohibited exports in order to prevent further depletion of its own supplies. Contrary to general expectations, the vital effect of the cutting off of London as a basis for supply of foreign quinine did not result in any fresh flurry in the article. The market in second hands in New York, on the other hand, under-

went a serious reversal, prices dropped to \$1.50 an ounce, but even at this figure the margin over makers' prices was still attractive. In view of the fact, however, that the United States was dependent upon its own production, which is less than 1,500,000 ounces, or only one-half as much quinine sulphate as is annually imported, the prospects for the resumption of normal figures for quinine while the war in Europe continued were regarded as remote.

"Imports of quinine sulphate and all salts and alkaloids of cinchona bark in the first nine months of 1915 to October 1 totalled only 657,611 ounces of the valuation of \$165,247, which compares with 2,069,370 ounces of the value of \$471,318 in the corresponding period in 1914, and 2,565,850 ounces of the value of \$479,760 in 1913. The imports of cinchona bark during the same nine months totalled 3,073,307 pounds of the value of \$453,669, comparing with 3,236,785 pounds of the value of \$438,403 in the same time, 1914, and 2,284,378 pounds of the value of \$479,760 in 1913. The relatively small imports of sulphate in 1915 indicate that the bulk of the quinine consumed here during the past year was manufactured by domestic makers."

THE DOG AS A CARRIER OF DISEASE TO STOCK.

The dog in the country is a useful and pleasant adjunct to the farm, if he be properly controlled and cared for, but when neglected, may readily become a carrier of disease to stock, in addition to gaining opportunity to kill sheep and destroy gardens and other property. Dog ordinances, as a general rule, have been intended chiefly to curb the dog's power of doing harm by attacking, biting, killing or running sheep or stock. The part that he plays as a carrier of diseases to animals only recently has been recognized, according to the zoölogists of the Department of Agriculture, who believe that when this is better understood, rural ordinances and laws which lessen this danger will gain the support of the community.

Of the diseases carried to stock by dogs, the foot-and-mouth disease is probably of the greatest interest at this time. In this case the dog acts as a mechanical carrier of infection. The dog which runs across an infected farm may carry easily in the dirt on his feet the virus of this most contagious of animal diseases to other farms, and thus spread the disease to the neighboring herds. In infected localities it is absolutely essential, therefore, to keep all dogs chained and never to allow them off the farm except on leash.

There are, however, many other maladies in the spread of which the dog takes an active part. In Bulletin 260 of the United States Department

of Agriculture, "The Dog as a Carrier of Parasites and Disease," it is pointed out that rabies, hydatid, ringworm, favus, double-pored tapeworm, roundworm, and tongueworm are often conveyed to human beings in this way. It occasionally happens also that the dog helps fleas and ticks in transmitting bubonic plague or the deadly spotted fever.

Hydatid disease is caused by the presence in the liver, kidneys, brain, lungs, and other organs, of a bladder worm or larval tapeworm. Bladder worms are often as large as an orange and may be larger. A dog which is allowed to feed on carrion or the raw viscera of slaughtered animals, may eat all or part of a bladder worm, containing numerous tapeworm heads. These tapeworm heads develop into small segmented tapeworms in the intestine of the dog. The tapeworms in turn develop eggs, which are passed out in the excrement of the dog. They are spread broadcast on grass and in drinking water, where animals can very well eat them, and thus become infected. The hog is particularly liable to this disease because of its rooting habits. The eggs may get into human food, and persons who allow dogs to lick their hands and face also run the risk of getting the eggs of the tapeworm in their systems.

Prevention on the farm consists in so restraining the dog that he cannot get at carrion or raw viscera. Viscera should be boiled before being fed to dogs, and should never be thrown on the fields. If not cooked and fed, viscera and carcasses should be burned, buried with lime, or so disposed of as not to be accessible to dogs. Proper feeding of the dog is essential, and the owner who does not feed a dog properly has no right to keep one.

The parasite which causes gid in sheep somewhat resembles the hydatid worm. A dog allowed to eat the brain of a giddy sheep may swallow this parasite and later distribute the eggs of the resulting tapeworm over the pasture. Sheep, while grazing, swallow the eggs with the grass which they eat. In the case of sheep dogs it is important to administer vermifuges often enough to keep them free of these worms. In the case of sheep measles, the bladder worm in the meat, typical of this disease, is swallowed by the dog, and again the tapeworm eggs are passed by the dog to grass or water, and there are eaten by sheep.

Of the external parasites which dogs may carry to animals, fleas and the various kinds of ticks are both troublesome and dangerous. The remedy is clear. The owner must keep his dog clean, not merely for the comfort and happiness of the dog, but to prevent it from becoming a carrier of disagreeable and dangerous vermin.

These reasonable measures, important to the stock on the farm, have a direct connection with the health of the family. Where ringworm or other skin diseases break out among the children, or the worm parasites develop, it is well to determine whether a dirty or uncared-for dog

may not be carrying infection on his skin or hair, or be conveying disease from carrion directly to the food and persons of his friends. Even if no one is infected with disease, the folly of allowing a dog to remain dirty and have the freedom of a home where personal cleanliness and hygiene are respected, is apparent.

CANCER IN THE UNITED STATES.

DR. BEITLER, Registrar of Vital Statistics, State of Maryland, has prepared some very interesting tables showing the mortality of cancer in the registration area of the United States during the decade 1904 to 1913.

The number of deaths, in the registration area, from this cause has increased from 23,295 in 1904 to 49,928. This corresponds to a rate of over 70 per 100,000 in 1904 and nearly 79 per 100,000 in 1914. Dr. Beitler's analysis shows the steady increase, not only in the number of deaths, but in the death rate in practically all the years of the decade, the increase in the rate amounting to 12.5%, comparing the first with the last year of the decade.

Facts already well known in regard to the prevalence of this disease are clearly brought out in this study: The greater frequency of cancer in the females than in the males; the greater increase in the rate among the males than among the females; no marked increases in the mortality up to the fortieth year of life, after which the death rate per one thousand shows a progressive increase; the greatest number of deaths between the ages of 60 and 70, closely followed by the age-group between 50 and 60.

The most frequent site of cancer shown in the table is cancer of the stomach and liver, from which 31 out of every 100,000 people died in the year 1913. The next in order of frequency is that of the female genital organs, the mortality for which was 12 per one hundred thousand. Cancer of the intestines showed a mortality of 10, cancer of the breast one of seven per one hundred thousand of the population.

The most marked increase is seen in cancer of the intestines. Next in order was the increase of 40% of cancer of the mouth. Then cancer of the breast with 20%, cancer of the stomach and liver with 19% increase.

The conclusions Dr. Beitler draws are that cancer mortality is increasing, that the increase is real, that the question of refined diagnostic methods and the inclusion of border-line cases cannot be a large factor in determining the rates; that it is hardly probable that a physician of a decade ago was so inefficient as not to be able to recognize advanced cancer; that the changes in the composition of the population, that is, in the sex and age distribution, were so slight that the effect on the increase in the specific rates was negligible.

The paper is interesting just at this particular time when the discussion of the increase in the mortality from cancer has taken on a new impetus by reason of the campaign directed by certain scientific organizations.

As pointed out in the *Bulletin* of Nov. 13, the Boston Department of Health proposes in 1916 to make its cancer statistics highly accurate by securing, wherever possible, additional information from the physician in all deaths reported from cancer.

A disease which is responsible for more than five per cent. of all deaths, which appears to be definitely on the increase, and which brings misery and suffering wherever it occurs, demands our serious attention. The Department of Health counts on the physicians of this city to cooperate with it in securing light on the nature and mode of spread of this obscure malady.

Correspondence.

THE PUMP ROOM AT BATH IN SMOLLETT'S TIME.

Boston, Dec. 4, 1915.

Mr. Editor: Dr. Sunderland's recent book on Old London's Spas, Baths and Wells* reminds us of the graphic description of Bath and especially of the Pump Room, written by Matthew Bramble to Dr. Lewis in the tale of Humphry Clinker. Sir Walter Scott says, (preface to Smollett's works), "The portrait of Matthew Bramble, in which Smollett described his own peculiarities, using towards himself the same rigid anatomy which he exercised upon others, is unequalled in the line of fictitious composition." The letter relates some of the trials and tribulations of getting accommodations at Bath of a suitable nature, and then describes experiences at the bath as follows: "Two days ago went into the king's bath, by the advice of our friend Ch—, in order to clear the strainer of the skin, for the benefit of a free perspiration, and the first object that saluted my eyes was a child, full of scrofulous ulcers, carried in the arms of one of the guides, under the very noses of the bathers. I was so shocked at the sight I retired immediately, with indignation and disgust. Suppose the matter of those ulcers, floating in the water, comes in contact with my skin, I would ask you what must be the consequence? Good heavens! the very thought makes my blood run cold! We know not what sores may be running into the water while we are bathing, and what sort of matter we may thus imbibe, the king's evil, the scurvy, the cancer and the pox, and, no doubt, the heat will render the virus the more volatile and penetrating."

"But I am now as much afraid of drinking as of bathing, for after a long conversation with the doctor about the construction of the pump and the cistern, it is very far from being clear with me that the patients in the pump room don't swallow the scourgings of the bathers. I can't help suspecting that there is, or may be, some reargitation from the bath into the cistern of the pump. In that case what a delicate beverage is every day quaffed by the drinkers. . . .

* Reviewed editorially in the issue of the JOURNAL for Dec. 2, 1915, Vol. cxxiii, p. 854.

"The very air we breathe is loaded with contagion. We cannot even sleep without the risk of infection. I say infection—this place is the rendezvous of the diseased—you won't deny that many diseases are infectious, even the consumption itself is highly infectious. When a person dies of it in Italy, the bed and bedding are destroyed, the other furniture is exposed to the weather, and the apartment whitewashed, before it is occupied by any other living soul."

As Smollett was born in 1721 and died in 1771, and he was undoubtedly quoting from his own experience, his statements bespeak keen knowledge, and a surprisingly advanced position as regards sanitation for the times in Italy. This last statement was undoubtedly the result of Smollett's actual experience and observation in Italy, as he was a resident of that country for some years.

Very truly yours,

WM. PEARCE COUES, M.D.

31 Massachusetts Avenue.

A CORRECTION.

Boston, Nov. 17, 1915.

Mr. Editor: I wish to protest against the headline set over the very inaccurate account in the daily press of my recent talk at Evans Memorial. The mistakes in the body of the account are not, most of them, very vital, but to represent me as saying that "nine-tenths of doctors guess" is in the first place false, as I never said it, and in the second place meaningless. If it means that nine-tenths of doctors sometimes guess, it must be true of ten-tenths. If it means that nine-tenths of them habitually guess or guess nine-tenths of the time, as many would suppose on reading the headline, it is in my belief entirely untrue, and very unjust to the body of the medical profession.

I am not trying to contrast hospital physicians with other physicians, but to contrast the treatment which any physician can give, when he has the advantages of hospital laboratories and instruments of precision, with the treatment which that same physician or any other could give without those aids. It is a difference not of personalities but of methods, and I protest against reports which make it appear falsely that I think ill of the efforts and fidelity of most physicians.

RICHARD C. CABOT, M.D.

SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held in the Amphitheatre, Building A, Harvard Medical School, December 28, at 4 p.m. sharp.

A symposium on Cancer by members of the Huntington Memorial (Cancer) Hospital staff will occupy the first hour, after which a clinic will be held at the Hospital.

Supper will be served in the Library of the Medical School, Building A, at 6.30 p.m.

BRADFORD KENT, M.D., Secretary.

MASSACHUSETTS GENERAL HOSPITAL CLINICAL SOCIETY MEETING on Monday, December 27, 1915, in the Out-Patient Amphitheatre, 7.15 p.m.

1. "Pneumonia in Children, with especial reference to the x-ray as a diagnostic feature," Dr. Darkin.

2. "Medical Experiences in Arabia," Dr. Paul Harrison.

3. Presentation of pathological specimens of exceptional interest.

ELLIOTT C. CUTLER, M.D., Secretary.